(23,459)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1913.

No. 397.

DES MOINES GAS COMPANY, APPELLANT,

vs.

CITY OF DES MOINES ET AL.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF IOWA.

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25	—Capital City Gas Light Company, stockholders' and directors' minutes, volume I (omitted in printing).....	1107	
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27	—Des Moines Gas Company, stockholders' and directors' minutes, volume I (omitted in printing)...	1508	
28	—Des Moines Gas Company, directors' minutes, 10 pages, covering meetings of April 24, 1911, May 22, 1911, June 26, 1911, July 10, 1911, and July 24, 1911 (omitted in printing)	1749	
29	—Plat of property adjacent to gas works, showing assessed valuation thereof, prepared by James Parker (omitted in printing).....	1760	
30	—Report of James Hall, of Marwick, Mitchell and Company, on the Des Moines Gas Company.....	1761	3611
31	—Des Moines Gas Company, rate regulation account for the years 1909 and 1910.....	1831	3662
32	—Figures made by Mr. Hall in endeavor to reconcile Defendants' Exhibit 30 with Complainant's Exhibit 23 (read in record page 3146 of testimony).		
33	—Report of James Hall, of Marwick, Mitchell and Company—investment value of plant, Des Moines Gas Company, December 31, 1910 (omitted in printing).....	1835	

	Original.	Print
Defendants' Exhibit 34—Explanation of Wisconsin theory of investment value, using as a basis an original investment of $1,000 with annual additions of $1,000 for 20 years, prepared by James Hall, of Marwick, Mitchell and Company (omitted in printing).....	1843	
35—Summary of plant investment as per books, January 1, 1895, to December 31, 1910, prepared by James Hall, of Marwick, Mitchell and Company (read in record page 3458 of testimony).		
36—Estimated average investment and return from estimated revenue, prepared by James Hall, of Marwick, Mitchell and Company (read in record page 3461 of testimony).		
37—Contract, Des Moines Gas Company and Percival Porter Co., agent, *in re* street main extension (read in record page 3601 of testimony).		
38—Capital City Gas Light Company, Des Moines, Iowa, cash invested in construction and working capital, December 31, 1894, as shown by affidavit of Edw. G. Pratt, filed June 14, 1895, in cause No. 2033, equity, in the U. S. circuit court, southern district of Iowa, being Capital City Gas Light Company *vs.* City of Des Moines.....	1845	3666
39—Affidavit of Edw. G. Pratt, June 7, 1895, in case of Capital City Gas Light Company *vs.* City of Des Moines	1848	3668
40—A part of the affidavit and statement of Edw. G. Pratt as filed in the case of Exhibits Nos. 38 and 39, *supra.*	1853	3672
41—Transcript of testimony in No. 2360, equity, Capital City Gas Light Company *vs.* City of Des Moines.	1855	3673
42—Affidavit of Edw. G. Cowdery, June 6, 1895, in cause No. 2330, equity, Capital City Gas Light Company *vs.* City of Des Moines.....	1879	3691
43—Report of Edward W. Bemis on the Des Moines Gas Company.....	1895	3700
44—Pamphlet entitled "The Issue in the Foreground—Gas" (omitted in printing).....	1987	

	Original.	Print
Defendants' Exhibit 45—Price of cast-iron pipe, Des Moines Gas Company—Edw. W. Bemis (read in record page 4252 of testimony).		
46—Illustration of sinking fund method of financing depreciation, by E. W. Bemis (read in record page 4262 of testimony).		
47—Operating expenses and profits, 1910 and 1911, Des Moines Gas Company, by E. W. Bemis (read in record page 4341 of testimony).		
48—Bill, Des Moines Gas Company to the U. G. I. Company for fee paid A. B. Cummings, March 23, 1906	2017	3747
49—Bill, Des Moines Gas Company to the U. G. I. Company, expenses of F. C. Morgan, March 14, 1906 (read in record page 4418 of testimony).		
50—Bill, Des Moines Gas Company to the U. G. I. Company, expenses of D. D. Reinhardt, March 31, 1906 (read in record page 4420 of testimony).		
51—Bill, Des Moines Gas Company to the U. G. I. Company for notary services, April 3, 1906 (read in record page 4425 of testimony)	2018	3747
52—(Not offered.)		
53—Bill, Des Moines Gas Company to the U.G. I. Company, October 31, 1906, October time of J. S. Harrison	2019	3747
54—Bill, Des Moines Gas Company to the U. G. I. Company, September 30, 1906, September time of J. S. Harrison	2020	3747
55—Letters between Jansen Haines and Lewis Lillie *in re* journal entry of September 15, 1910 (read in record page 4513 of testimony).		
56—Treasurer's check book, Des Moines Gas Company on First National Bank, Philadelphia (read in record page 4477 of testimony).		
57—Voucher, September 15, 1911, Des Moines Gas Company to the U. G. I. Company (read in record page 4515 of testimony).		

	Original.	Print
Defendants' Exhibit 58—Voucher, September 15, 1911, Des Moines Gas Company to the U. G. I. Company (read in record page 4516 of testimony).		
59—Analysis of accounts, Des Moines Gas Company with the U. G. I. Company, March 1, 1906, to December 31, 1910.....	2021	3747
61—The U. G. I. Company, statement taken from Moody's Manual Service, 1910 (read in record page 4590 of testimony).		
67—Des Moines Gas Company, operating expenses for 8 months ending December 31, 1910.....	2027	3748
68—Des Moines Gas Company, additions to plant Jan. 1, to Aug. 31, 1911..	2031	3751
69—Des Moines Gas Company, note of gas sales for 12 months to February 28th in each year, 1907 to 1911...	2032	3752
70—Mr. Sangster's figures analyzing the account of the U. G. I. Company and Des Moines Gas Company, being the same as Complainant's Exhibit No. 69.		
71a—Ordinance of the city of Minneapolis passed February 23, 1910 (read in record page 4658 of testimony).		
71b—Ordinance of the city of Minneapolis passed March 24, 1910 (read in record page 4674 of testimony).		
72—Letter, J. R. Hanna to Jansen Haines, dated February 7, 1911 (read in record page 4713 of testimony).		
73—Letter, Jansen Haines to Mayor J. R. Hanna, dated February 14, 1911 (read in record page 4715 of testimony).		
74—Prof. Bemis' analysis and correction to Complainant's Exhibit No. 65.	2033	3752
75—Prof. Bemis' correction for page 92 of his report, Defendants' Exhibit No. 43.....	2039	3756
76—Prof. Bemis' margin between price of gas on the one hand and manufacturing expenses, leakage, and taxes, on the other hand, in Des Moines and in seven Massachusetts cities.....	2040	3757

	Original.	Print
Defendants' Exhibit 77—Des Moines Gas Company, rate regulation expense, January 1 to August 31, 1911, prepared by Mr. Sangster.....	2042	3758
78—Semi-annual statement of Commercial Trust Co. of Philadelphia at close of business on July 31, 1911 (omitted in printing).....	2053	
79—Capital City Gas Light Company, copies of improvement and repair authorizations Nos. 439, 460, and 467, covering the million-foot holder and 8 ft. 6 in. water gas set.	2054	3779
80—Summary of data on which were based the tables Nos. 91 and 92 in the report of E. W. Bemis, Defendants' Exhibit No. 43 (read in record page 4933 of testimony).		
81—Wisconsin theory, summary of investment account after crediting depreciation charge and on operating expense, July 1, 1886, to December 31, 1910, prepared by James Hall, of Marwick, Mitchell and Company (omitted in printing)...	2057	
82—Bill, Des Moines Gas Company in account with Blaise and Blaise, dated April 1, 1911.....	2058	3781
83—Voucher, Des Moines Gas Company to Blaise and Blaise, April 1, 1911.	2059	3781
84*a*—Extract from U. G. I. Ledger 7*a* and 8*a*, Des Moines contract No. 87. (omitted in printing).....	2060	
84*b*—Extract U. G. I. Ledger 7*a* and 8*a*, Des Moines contract No. 52 (omitted in printing).....	2079	
84*c*—Transcript from construction records of George J. Roberts, showing detailed cost of constructing oil plant and water gas apparatus at Des Moines, Iowa (omitted in printing)	2098	
84*d*—Transcript from construction records of George J. Roberts, showing detailed cost of constructing gasholder at Des Moines, Iowa (omitted in printing).....	2103	
84*e*—Extract from U. G. I. Ledger 8*a*, showing account with Des Moines Gas Company, March 1, 1906, to December 31, 1910 (omitted in printing)	2108	

	Original.	Print
Defendants' Exhibit 84*f*—Contract, Stacey Manufacturing Company and George J. Roberts, October 18, 1902, for erection of gas-holder on land adjoining gas works of Capital City Gas Light Company at Des Moines, Iowa (omitted in printing)	2153	
Clerk's certificate to part three (exhibits)	2167	3782
Clerk's certificate to complete transcript	2169	3783

a UNITED STATES OF AMERICA, *ss:*

Filed November 20th, 1912. Wm. C. McArthur, Clerk.

To City of Des Moines, James R. Hanna, John MacVicar, Charles W. Schramm, John Wesley Ash, Zell G. Roe, and Robert O. Brennan, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States, at Washington, within thirty days from the date hereof, pursuant to an order allowing an appeal filed in the Clerk's Office of the District Court of the United States for the Southern District of Iowa, Central Division, wherein Des Moines Gas Company is appellant, and you are appellees, to show cause, if any there be, why the decree rendered against the said appellant should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness, the Honorable Willis Van Devanter, Associate Justice of the Supreme Court of the United States, this 18th day of November, in the year of our Lord one thousand nine hundred and twelve.

WILLIS VAN DEVANTER,
Associate Justice of the Supreme Court of the United States.

Due and legal service of the above Citation and the receipt of a copy is hereby acknowledged, at Des Moines, Iowa, this 20th day of Nov. 1912.

R. O. BRENNAN &
H. W. BYERS,
Attorneys for Appellees.

b Pleas and proceedings before Honorable Smith McPherson, Judge of the District Court of the United States for the Southern District of Iowa, as successor of the Circuit Court of the United States for the Southern District of Iowa, in a certain cause lately pending in the Central Division of said Court being No. 71-M Equity, wherein the Des Moines Gas Company is Complainant and the City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, John Wesley Ash, Zell G. Roe, and Robert O. Brennan, are Defendants.

Appearances:

Nathaniel T. Guernsey, Des Moines, Iowa; George H. Carr, Des Moines, Iowa; William L. Read, Des Moines, Iowa, Attorneys for Complainants.

Robert O. Brennan, Des Moines, Iowa; Howard Webb Byers, Des Moines, Iowa, Attorneys for Defendants.

WM. C. McARTHUR,
Clerk, Des Moines, Iowa.

c Be it remembered that at a stated term of the Circuit Court of the United States for the Southern District of Iowa, Central Division, now District Court of the United States for the Southern District of Iowa, Central Division begun and holden in the City of Des Moines on the third Tuesday in November A. D. 1910, the same being November 15th, 1910, there was filed on the 29th day of December 1910, the same being a day of the November 1910 term of said Court a Bill of Complaint by the Des Moines Gas Company against the City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, John Wesley Ash, Zell G. Roe and Robert O. Brennan, which said Bill of Complaint is in the words and figures as follows to-wit:

1 In the Circuit Court of the United States, Southern District of Iowa, Central Division.

(Filed Dec. 29, '10. W. C. McArthur, Clerk.)

(#71-M). In Equity.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Bill of Complaint.

To the Honorable Judges of the Circuit Court of the United States for the Southern District of Iowa:

The Des Moines Gas Company brings its bill of complaint against the City of Des Moines, James R. Hanna as Mayor of the City of Des Moines, J. W. Ash, Zell G. Roe, John MacVicar and C. W. Schramm as members of the City Council of the City of Des Moines, and R. O. Brennan as City Solicitor, and thereupon your orator complains and alleges:

I.

Your orator is a corporation created, organized and existing under and by virtue of the laws of the State of Iowa, and is a citizen of the State of Iowa, having its principal office and place of business in the City of Des Moines, Iowa.

II.

The City of Des Moines is a municipal corporation, being a city of the first class, having a population of upwards of 86,000 people, organized on what is known as the "Commission Plan" under
2 the provisions of Chapter 67 of the Laws of the 33rd General Assembly of the State of Iowa, its legislative and executive powers being vested in and exercised by a mayor and city council

consisting of four councilmen. The defendant James R. Hanna is the duly elected and acting mayor of the city, and defendants J. W. Ash, Zell G. Roe, John MacVicar, and C. W. Schramm are the duly elected and acting councilmen of the said city, and defendant R. O. Brennan is the city solicitor of the said city and as such is the head of the legal department thereof and as such is charged with the duty of enforcing violations of the city ordinances.

III.

The amount involved in this controversy exceeds, exclusive of interests and costs, the sum of Two Thousand ($2,000.00) Dollars, and this controversy involves the construction of certain provisions of the constitution of the United States, to-wit:

1. Those prohibiting impairing the obligation of the contract existing between complainant and the defendant city and between the complainant and the State of Iowa, growing out of complainant's incorporation under the statute of the State of Iowa and of the city ordinance, giving the right to plaintiff to lay its mains and supply gas to the residents of said city.

2. Those prohibiting the taking of complainant's property for public use, without just compensation therefor.

3. Those prohibiting the taking of its property without due process of law; and,

4. Those guaranteeing complainant equal protection of the law.

IV.

Your orator, under and by virtue of its charter and articles of incorporation, is empowered to construct, own, operate and maintain gas works in the City of Des Moines and it has established, erected and owns, and is now maintaining and operating within the
3 City of Des Moines, gas works consisting of a manufacturing plant, holders, mains, pipes and a large amount of other property in the City of Des Moines, used in its business of manufacturing and distributing gas for illuminating and fuel purposes to consumers. The present value of its said property exceeds the sum of $2,700,000.00.

V.

There is now an ordinance of the City of Des Moines permitting complainant to charge and receive for gas for illuminating, fuel or other purposes, furnished by it to the City of Des Moines or its inhabitants, $1.00 per thousand cubic feet where payment is made on or before the 15th day of the month following that in which the gas was consumed, and $1.10 per thousand cubic feet where payment is made subsequent to the 15th day of the month following that in which the gas was consumed.

VI.

Under the said ordinance complainant received a gross income from the sale of gas for the twelve months ended September 30,

1908, the sum of $457,105.95, and the twelve months ended September 30, 1909, the sum of $491,944.49, and for the twelve months ended September 30, 1910, $526,293.50. The average annual gross revenue for the three years period ended September 30, 1910, was $491,781.31. For the twelve months ended September 30, 1908, complainant's operating expenses and taxes in the City of Des Moines was the sum of $281,613.48, for the twelve months ended September 30, 1909, $283,339.06, and for the twelve months ended September 30, 1910, $345,282.43. The average annual operating expense and taxes for the three-year period ended September 30, 1910, was $303,411.66. After deducting from the average annual gross revenue for the said three-year period, the average annual expenditure and operating expense and taxes for the same period, there remains an average annual net earning for the said period of $188,369.65. From this sum there must be deducted annually for depreciation the sum of $49,178.13. The average annual net amount received
4 by the company for interest and profits upon its investments under the rate established by the said ordinance is the sum of $139,191.52 during the said three-year period. During the said three-year period complainant received as interest and profits upon the valuation of its said property from its net earnings but 5.15% annually. The said rate of $1.00 per thousand cubic feet yields an income on the investment far below the interest earnings upon similar investments in the City of Des Moines.

VII.

That the said ordinance passed in 1896 was for fifteen years, and by its terms expires January 1, 1911.

On the 21st day of October, 1910, the City Council of the City of Des Moines passed a resolution, directing the Superintendent of the Department of Streets and Public Improvements and the legal department to recommend to the council a new schedule of rates and regulations for the sale and distribution of gas. The defendant, John MacVicar, is the superintendent of said department of Streets and Public Improvements. Shortly thereafter he advised complainant of his purpose to recommend an ordinance, reducing the rates for the sale of gas.

On the 22nd day of November, 1910, complainant submitted to the defendant, John MacVicar, Superintendent of Streets and Public Improvements of the City of Des Moines, a communication showing in detail the average annual net revenue of complainant for the three-year period ended September 30, 1910, as set forth in this Bill of Complainant, and invited him or the superintendent of finance and accounts, or a committee of the council to examine the books of the company for the purpose of verifying the correctness of said statement as to revenue and expenditures; and offering to furnish every facility for an exhaustive and satisfactory investigation. It further informed the said Mr. MacVicar in said communication that an inventory and valuation of the company's property and assets was being taken, and invited him to have the city engineer co-operate

with the engineers of complainant's engaged in making said
5 inventory and valuation. That the said MacVicar notified complainant of his acceptance of said offer, and detailed one of the city engineers to co-operate with engineers of complainant in making the said appraisements and valuations.

Complainant immediately employed a large force of engineers with their assistants to inventory and appraise said property in the City of Des Moines and the work has been prosecuted with all reasonable dispatch, but is not yet completed. While the engineer of the defendant has co-operated with the engineers of complainant in inventorying and valuing the property of complainant, the defendants have not taken any steps to verify the statement of complainant as to revenue and expenditures. Complainant's purpose in asking the defendant to co-operate in an appraisement and valuation of its property and to verify its revenues and expenditures was to furnish the city the fullest information as to facts upon which a just and equitable rate should be based, and to convince the defendants that any reduction of the present rate would be unjust, unfair and confiscatory of complainant's property.

VIII.

On the 27th day of December, 1910, without having availed themselves of complainant's offer to submit to an investigation, for the purposeof verifying its statements as to its revenues andexpenditures, and without waiting for the inventory and valuation of its property, and without any knowledge with respect to the value of said property, and without making any investigation as to whether the present rate was fair, just and compensatory, and as to whether a reduction of the said rate would result in confiscation of complainant's property, the said MacVicar introduced an ordinance reducing the rate to ninety cents per one thousand cubic feet, and the same was immediately passed by the City Council, under a suspension of the rules, requiring a separate reading on three separate days. The said ordinance is entitled, "An Odrinance to fix the price of gas supplied
6 or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for a vioaltion thereof", and is by its terms to become operative and in full force and effect after the first day of January, 1911, under an urgency clause thereof, that it is necessary for the immediate preservation of the public peace, health and safety. The said ordinance contains a provision, making it a misdemenor punishable by a fine not exceeding One Hundred Dollars, or imprisonment in the city jail for a period not exceeding thirty days for any officer or agent of complainant to collect or receive any rate or compensation for gas supplied or distributed in excess of the rate fixed by said ordinance.

IX.

The limit of consumption of gas in the City of Des Moines has been practically reached and will not be increased by a lowering of the rate as proposed by the said pretended ordinance to any material extent. That the amount of gas consumed in the City of Des Moines under the present ordinance will not be materially increased on account of any reduction in the rates and the income of the complainant under the proposed ordinance if it be enforced, will be reduced far below its income under the existing ordinance, while its taxes and expenditures will not be reduced, and the said rates will not furnish complainant a fair return on the value of its property.

X.

Your orator further alleges that said pretended ordinance fixing a 90c. rate is unreasonable to the extent that its enforcement will amount to the taking of complainant's property for public use without just compensation and that it will operate as confiscation of the property of complainant. That the enforcement of said
7 ordinance will deprive complainant of its property without due process of law and will deny to complainant equal protection of the law. Its enforcement would impair the existing contract between complainant and defendant city and between plaintiff and the State of Iowa, growing out of plaintiff's incorporation under the statute of the State of Iowa and of the ordinances of the City of Des Moines, giving the right to complainant to lay its mains and supply gas to the residents of the said city.

Your orator further alleges, that unless defendants are restrained by the orders of this court, that they will enforce the provisions of the said pretended ordinance and will prevent complainant from charging or receiving in excess of ninety cents per thousand cubic feet for gas sold and distributed.

XI.

And for as much as your orator can have no adequate relief, except in this court, and to the end that the defendants may, if they can show why your orator should not have the relief herein prayed for, that defendants answer this, your orator's bill, according to the course of practice of this court, but not under oath, answer under oath being hereby expressly waived, and that it be declared by the decree of your honor's that the provisions of the ordinance above referred to, passed December 27, 1910, is in violation of the constitution of the United States for the reasons herein before stated, and for such other and further reasons as may by your honor be found to exist, and that the said ordinance be decreed void and of no effect, and that defendants and each of them be enjoined and restrained as follows: That the city of Des Moines, and each of the other defendants and their successors in office, be temporarily and permanently restrained and enjoined from any attempt to compel your orator, its officers, agents or representatives to obey or comply with the said pretended ordinance and from putting in force or

effect the rates sought to be prescribed therein. And further, be temporarily and permanently restrained and enjoined from taking or causing to be taken any action, step or proceeding against
8 your orator, or any of its officers, agents or representatives, for failing or refusing to comply with said pretended ordinance or to charge and receive the rate for gas so prescribed therein.

May it please your honors to grant unto your orator a writ of injunction, issuing out of this Honorable Court and under the seal thereof, directed to defendants herein and to their successors in office, temporarily and perpetually enjoining and restraining the defendants and each of them, and their successors in office as herein before prayed.

That your orator have and recover judgment for its costs herein expended; that it have such other and further relief as the circumstances of this case require and is conformable with equity and good conscience; that a writ of subpœna of the United States of America issue, directed to the defendants and each of them, commanding them and each of them at a day herein named, to appear and answer unto this Bill of Complaint and to abide and conform to such orders and decree in the premises as to the court shall seem meet and as is required by the principles of equity and good conscience.

(Signed) CARR, CARR & EVANS AND
READ & READ,
Solicitors for Complainant.

(Signed) GEO. H. CARR AND
W. L. READ,
Of Counsel.

9

Copy.

STATE AND SOUTHERN DISTRICT OF IOWA,
County of Pottawattamie, ss:

I, Jansen Haines, being duly sworn, depose and say, that I am the Manager of the complainant company. That I have read the foregoing bill of complaint and know the contents thereof and the matters and things therein alleged are within my personal knowledge and that said bill is true except as to matters therein stated upon information and belief, and as to those matters, I believe them to be true.

(Signed) JANSEN HAINES.

Signed and sworn to before me this 29th day of December, 1910.

(Signed) CHAS. G. SAUNDERS,
Notary Public, Pottawattamie County, Iowa.

[Charles G. Saunders, Iowa, Notarial Seal.]

10 & 11 And thereafter to-wit: On the same day December 29th, A. D. 1912, there was filed in said cause a Motion for Preliminary Injunction which said motion is in words and figures as follows to-wit:

* * * * * * *

(Omitted in printing per stipulation.)

12–17 And thereafter to-wit: On the 31st day of December, A. D. 1912, there was filed in said Court, Views of the Trial Court, which said views of the trial court *is* in words and figures as follows to-wit:

* * * * * * *

(Omitted in printing per stipulation.)

18 And thereafter to-wit: On the same day, December 31, A. D. 1912, there was filed in said Court a Temporary Restraining Order which said Temporary Restraining Order is in words and figures as follows to-wit:

19 Copy.

(#71-M. Filed Dec. 31 '10. W. C. McArthur, Clerk.)

In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Temporary Restraining Order.

And now on this day the Complainant's bill of complaint and motion for temporary injunction restraining the defendants as prayed in the Bill of Complaint, are duly considered by the court, the same having been submitted to the court December 29, 1910, by the complainant, defendants not being represented. And the court being advised, it is ordered that said motion for temporary injunction be heard at Council Bluffs, Iowa, on the 6th day of January, 1911, at 10 o'clock A. M., and that of such hearing at said time and place, the defendants be given three days' notice, it further appearing to the court upon the allegations of the bill of complaint that complainant may sustain great and irreparable injury from the ordinance passed on December 27, 1910, by the City Council of the City of Des Moines, referred to in said bill, becoming

operative and its provisions being enforced by the defendants. It is further ordered that pending the hearing of the said application for a temporary injunction, and until the further orders of the court, that defendants and each of them be restrained from putting into effect or in any wise enforcing the provisions of said ordinance passed by the city council of the City of Des Moines on the 27th day of December, 1910, being an ordinance entitled, "An
20 Ordinance to fix the price of gas supplied or distributed to the City of Des Moines or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the city in supplying or distributing such gas and prescribing penalties for a violation thereof."

Done at Council Bluffs, Iowa, this 31st day of December, 1910.

(Signed) SMITH McPHERSON, *Judge*.

(Ent. Record V 159.)

21 & 22 And thereafter to-wit: On the 31st day of December, A. D. 1912, there was filed in said cause a Præcipe for Appearance of Defendant's solicitors which said præcipe is in words and figures as follows, to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

23–25 And thereafter to-wit: On the 6th day of January, A. D. 1911, there was filed in said cause a Notice of Hearing for Temporary Injunction which said Notice is in words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

26 And thereafter to-wit: On the same day January 6th, 1911, there was filed in said cause an order granting leave to amend bill of complaint which said order is in words and figures as follows, to-wit:

27 Copy.

In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

#71-M. Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES et al.

It is hereby ordered that the complainant have leave to file an amendment to the bill of complaint herein.

Done at Des Moines, Iowa, this sixth day of January, A. D. 1911.

(Signed) SMITH McPHERSON, *Judge.*

(Filed January 6, 1911. Wm. C. McArthur, Clerk. Ent. Rec. V, Page 170.)

28 And thereafter to-wit: On the same day, January 6th, 1911, there was filed in said cause an Amendment to the Bill of Complaint, which said amendment is in words and figures as follows to-wit:

29 **Copy.**

(Filed Jan. 6, 1911, Wm. C. McArthur, Clerk.)

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Amendment to Bill of Complaint.

Comes now complainant, the Des Moines Gas Company, and by and with leave of the court first obtained, amends its bill of complaint on file herein as follows:

I.

By striking out of the second paragraph in and from the 7th, 6th and 5th lines from the bottom of the first page of said bill of complaint, the following words: "Under the provisions of Chapter 67 of the Laws of the 33d General Assembly of the State of Iowa", and inserting in lieu thereof, the following: "Under the provisions of Chapter 14-C of title 5 of the Supplement to the Code of Iowa and the amendment thereto in Chapter 64 of the Laws of the 33d General Assembly".

II.

By striking out of the said second paragraph, the word "violations" in the third line from the top of the second page and inserting in lieu thereof the word "provisions".

III.

By striking out from the last line of the fourth paragraph the words and figures "exceeds the sum of $2,700,000.00" and by inserting in lieu thereof the words and figures "is the sum of $4,092,000.00".

30

IV.

By striking out from the 17th line of the sixth paragraph the figures "$49,178.13" and inserting in lieu thereof "$83,608.00". Also by striking from the 19th line from said paragraph six, the figures "$139,191.52" and by inserting in lieu thereof the figures, "$104,761.65"; and also by striking from the 22d line of said paragrpah six the figures "5.15%" and by inserting in lieu thereof the figures "2.56%".

(Signed) CARR, CARR & EVANS,
READ & READ,
Solicitors for Complainant.

(Signed) W. L. READ AND
GEO. H. CARR,
Of Counsel.

31

Copy.

UNITED STATES OF AMERICA,
State and Southern District of Iowa, County of Polk, ss:

I, Jansen Haines, being duly sworn, depose and say that I am the manager of the complainant company. I have read the foregoing amendment to the bill of complaint and know the contents thereof, and the matters and things therein alleged are within my personal knowledge and that the said bill is true except as to matters therein stated upon information and belief, and as to such matters, I believe them to be true.

(Signed) JANSEN HAINES.

Signed and sworn to before me this 5th day of January, 1911.

(Signed) GENEVIEVE WILLIAMS,
Notary Public, Polk County, Iowa.

[Genevieve Williams, Iowa, Notarial Seal.]

32 & 33 And thereafter to-wit: On the same day January 6th, 1911, there was filed in said cause an Affidavit of John H. Blair which said affidavit is in the words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

34–36 And thereafter to-wit: On the same day January 6th, 1911 there was filed in said cause an Affidavit of Simon Casady which said affidavit is in words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

37–55 And thereafter to-wit: On the same day January 6th, 1911 there was filed in said cause an Affidavit of Wm. A. Baehr which said affidavit is in the words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

56–65 And thereafter to-wit: On the same day, January 6th, 1911 there was filed in said cause an affidavit of Jensen Haines, which said affidavit is in the words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

66–88 And thereafter to-wit: On the same day January 6, 1911 there was filed in said cause a second affidavit of Jansen Haines which, said affidavit is in the words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

89 & 90 And thereafter towit: On the same day January 6th, 1911 there was filed in said cause an affidavit of F. M. Hubbell which said affidavit is in words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

91–94 And thereafter to-wit: On the same day January 6th, 1911 there was filed in said cause an affidavit of B. F. Kauffman, which said affidavit is in the words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

95 And thereafter to-wit: On the same day January 6th, A. D. 1911 there was filed in said cause the Joint and Several Demurrers of the Several Defendants to the Bill of Complaint which said Demurrer is in words and figures as follows to-wit:

96 (Filed Jan. 6, 1911. Wm. C. McArthur, Clerk.)

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

#71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

The Joint and Several Demurrers of the Several Above Named Defendants to the Bill of Complaint.

And now come the defendants, The City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, and not confessing any of the matter in the bill to be true, demur to the bill herein filed and say:

I.

That it appears by the Complainant's own showing by the said bill that this court may not by law entertain jurisdiction of said suit in this—That Complainant and defendants are citizens of the State of Iowa, the Complainant being a corporation organized under the laws of said State and the defendant, the City of Des Moines, Iowa, being a municipal corporation, organized and existing under the laws of said state, and that the several other defendants named in the bill are officers of said City of Des Moines and citizens of the City of Des Moines and State of Iowa, and that the said suit is not a suit arising under the Constitution or laws of the United States.

97 If this court shall entertain jurisdiction of said suit, these defendants, without confessing any of the matters in the bill to be true, doth further demur to said bill and for cause thereof show:

II.

That the said bill does not state any matter of equity entitling Complainant to the relief prayed for, nor are the facts as stated in said bill sufficient to entitle complainant to any other relief against these defendants or any of these defendants.

III.

That it appears by complainant's own showing by the said bill that the City Council of the City of Des Moines in passing the ordinance referred to in said bill, and of which complain*ant* is made, to-wit, the ordinance passed on the 27th day of December fixing the price to be charged for supplying and distributing gas to the City of Des Moines, Iowa, was passed by said council in the exercise of its legislative functions.

IV.

That complainant fails to allege or show in said bill the total amount of gross revenue by it from all sources in the conduct of its said business at the City of Des Moines, Iowa; and further, that complainant alleges the amount of gross revenue received from the sale of gas only and fails to allege that the gross revenue received from the sale of gas is all of the revenue which the complainant receives in the operation and conduct of its gas works, and in supplying and distributing gas in the City of Des Moines, or otherwise.

V.

That it appears by the complainant's own showing by said bill that complainant would realize some profit on the money actually invested in its gas plant and distributing system, and complainant fails to show the actual present value of its said plant or what sum would be required to now construct a plant of equal efficiency, and fails to allege or show what percentage of profit at the rate
98 fixed in the ordinance in controversy would or could be realized on the basis last stated.

VI.

The bill fails to show that the result of the enforcement of the ordinance complained of will result in the confiscation of complainant's property or any part thereof, and on the contrary the facts set forth and alleged in the bill show that the enforcement of the said ordinance will not be confiscatory of complainant's property.

VII.

The bill shows by the facts alleged therein that unless the ordinance complained of is enforced, the complainant will be permitted, if given the relief demanded, and especially if the restraining order issued shall be continued, to charge the inhabitants of the City of Des Moines an unreasonable or exorbitant rate for gas, the said bill alleging that the only agreement or regulation between the city and the complainant has by its terms expired, and if the ordinance complained of is not permitted to be enforced, then the complainant will be without regulation.

VIII.

That complainant fails to allege or show in said bill facts entitling it to a temporary injunction in this, that complainant does not show that it could not recover from the City of Des Moines or other consumers any sum or sums which it might fail to collect or receive during the pendency of this suit and before final decree if the said ordinance should, on final decree, be held to be void in respect to the rates fixed in said ordinance; and complainant fails to allege or show that the rate which complainant is now charging for gas and which it asks in effect the aid of this court to enforce pending this suit, is a reasonable or just rate.

IX.

The bill of complainant fails to show that complainant is willing or will in the event that the ordinance complained of should
99 be found to be legal, to refund to the City of Des Moines or to the various consumers taking gas from the complainant, the difference between the rates allowed in the ordinance complained of and in any of the rates the complainant may charge, demand, receive or collect.

Wherefore, and for divers other causes of demurrer appearing on the said bill, these defendants demur thereto. And defendants pray the judgment of this honorable court whether they shall be compelled to make any answer to the said bill; and they humbly pray to be hence dismissed with reasonable costs in this behalf sustained.

(Signed) ROBERT O. BRENNAN,
JAMES M. PARSONS,
Solicitors and Counsel for Defendants.

I, Robert O. Brennan, Solicitor for defendants in the above cause, do hereby certify that the foregoing demurrer in my opinion is well founded in law.

(Signed) ROBERT O. BRENNAN,
Solicitor.

STATE OF IOWA,
Polk County, ss:

James R. Hanna, being sworn deposes and says that he is the Mayor of the City of Des Moines, and defendant in the above entitled cause, and is one of the defendants in said cause; and he says that the foregoing demurrer is not interposed for delay.

(Signed) JAMES R. HANNA.

Sworn and Subscribed before me the 5th day of January, 1911.

(Signed) EDWARD C. LYTTON,
Notary Public in and for said County.

[Edward C. Lytton, Iowa, Notarial Seal.]

100 And thereafter to-wit: On the same day January 6th A. D. 1911 there was filed in said cause an order granting a Temporary Injunction which said order is in words and figures as follows to-wit:

101 Copy.

(Filed Jan. 6, 1911. Wm. C. McArthur, Clerk.)

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

#71–M.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Order.

This cause coming on for hearing upon the application of the complainant for a preliminary writ of injunction pursuant to the order of the court heretofore made, notice of which hearing was duly given as required by said order, and the parties now appearing by their solicitors and being heard upon said application, and it appearing that cause exists for the granting of the writ of injunction pending the final hearing of this cause:

It is therefore ordered, adjudged and decreed, that the restraining order heretofore granted herein be continued in full force and effect upon a bond being given by the complainant within ten days from this date in the penal sum of one hundred thousand dollars, with sureties to the approval of the Clerk of this Court, conditioned as hereinafter provided. That upon the filing and approval of said bond a writ of temporary injunction shall issue herein as prayed, restraining and enjoining the defendant, the City of Des Moines, and each of the other defendants and their sucessors in office, from putting into effect or in any wise enforcing or attempting to enforce the provisions of the ordinance referred to in the bill of complaint passed by the city council of the city of Des Moines on the 27th day of December, 1910, being an ordinance entitled:

102 "An ordinance to fix the price of gas supplied or distributed to the city of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the city in supplying or distributing such gas, and prescribing penalties for the violation thereof."

And the said writ remain in force until the further orders of this court.

To the end that the rights of the respective parties may be and remain in statu quo pending the final hearing, it is further ordered, complainant consenting thereto, that until the further orders of the court in the premises it shall continue the manufacture, sale and distribution of gas in the city of Des Moines under and in accordance with the provisions of the ordinances of the city of Des Moines in

effect on the 27th day of December, 1910, prior to the passage of the ordinance on December 27th, 1910, above referred to by title and date of passage. That it shall be permitted to charge and receive for gas sold and distributed by it at the rate of one dollar and ten cents per thousand cubic feet, provided that on all bills paid on or before the 15th day of the month following the month in which the gas was used, a discount of ten cents per thousand cubic feet shall be allowed, and shall continue the payment to the city of the two per cent license fee for use of streets in distributing gas provided in the ordinances of the city prior to the passage of the said ordinance of December 27, 1910, but in the event the said ordinance of December 27th, 1910, is held valid, then on final decree the amounts of license fee from January 1st, 1911, shall be adjusted on the basis of said ordinance. Provided, however, that in the event that it shall be determined by the final decree in this cause that said ordinance of December 27th, 1910, is valid, that complainant shall refund on demand to the persons by whom payment was made, all sums of money collected by it for gas sold and delivered from and after the
103 first day of January, 1911, in excess of the rate specified in the said ordinance of December 27th, 1910. That the bond required to be given by complainants shall, in addition to the usual provisions of such bonds, be conditioned for the performance of the obligations hereby imposed upon the complainant.

It is further ordered that defendants' demurrer to the complainant's bill of complaint is over-ruled pro forma and without passing upon the merits of the questions thereby presented. To the end that a speedy determination of this controversy may be had, it is further ordered, by and with the consent of both parties, that the defendants shall file answer to the bill of complaint as amended by the first day of February, 1911, and complainants shall plead thereto within five days thereafter.

It is further ordered that this cause be referred to a special master to be later appointed to take the evidence and report his findings of fact and conclusions of law. The taking of said testimony to be begun at Des Moines on the first day of March, 1911, and continue with all reasonable diligence until completed. The master shall file his report containing his findings of fact and conclusions of law thirty days prior to the first day of the May, 1911, session of this court at Des Moines.

Signed this 6th day of January, 1911.

[Signed.] SMITH McPHERSON, *Judge.*

(Ent. Record V. P. 170).

104 And thereafter to-wit: On the 13th day of January A. D. 1911 there was filed in said cause a Bond by the Complainant for the Temporary Injunction which said bond is in words and figures as follows to-wit:

105 THE UNITED STATES OF AMERICA,
Southern District of Iowa, Central Division:

71-M. C. D.

Know all men by these presents: That the Des Moines Gas Company, a corporation, organized and existing under and by virtue of the laws of the State of Iowa, as Principal, and the American Surety Company of New York as Surety, are held and firmly bound unto the City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe and R. O. Brennan in the penal sum of One Hundred Thousand ($100,000.00) Dollars, to the payment of which they bind themselves, each for itself and its successors, firmly by these presents.

The condition of the above obligation is such, that whereas the Des Moines Gas Company, a citizen of the State of Iowa, having filed on the chancery side of the Circuit Court of the United States for the Southern District of Iowa, a Bill against the said City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, and having obtained an allowance of the injunction as prayed for in said Bill from said court; now if the said Des Moines Gas Company shall abide by the decision of said court, and shall pay all moneys and costs which shall be adjudged against it, in case the said injunction shall be dissolved, and shall further pay all such sums as shall be required to be paid by the order of said court made on the 6th day of January, A. D. 1911, a copy of which said order is hereto attached as a part hereof, then these presents shall be void; otherwise to remain in full force.

In testimony whereof, the said Des Moines Gas Company and the American Surety Company has caused this obligation to be
106 executed on the 12th day of January, 1911.

DES MOINES GAS COMPANY,
By CARR, CARR & EVANS AND
READ & READ, *Its Attorneys.*
AMERICAN SURETY COMPANY OF NEW YORK,
[SEAL.] By F. H. NOBLE, *Res. Vice-Pres.*

Attest:
B. C. MATHER, *Res. Ass't Sec'y.*

(Endorsed:) Approved by Wm. C. McArthur, Clerk by Hattie Blank, Deputy. Filed January 13, 1911. Wm. C. McArthur, Clerk by Hattie Blank, Deputy.

107 Copy.

(Filed Jan. 6, 1911. Wm. C. McArthur, Clerk.)

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

#71-M.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Order.

This cause coming on for hearing upon the application of the complainant for a preliminary writ of injunction pursuant to the order of the court heretofore made, notice of which hearing was duly given as required by said order, and the parties now appearing by their solicitors and being heard upon said application, and it appearing that cause exists for the granting of the writ of injunction pending the final hearing of this cause:

It is therefore ordered, adjudged and decreed, that the restraining order heretofore granted herein be continued in full force and effect upon a bond being given by the complainant within ten days from this date in the penal sum of one hundred thousand dollars, with sureties to the approval of the Clerk of this Court, conditioned as hereinafter provided. That upon the filing and approval of said bond a writ of temporary injunction shall issue herein as prayed, restraining and enjoining the defendant, the City of Des Moines, and each of the other defendants and their successors in office, from putting into effect or in any wise enforcing or attempting to enforce the provisions of the ordinance referred to in the bill of complaint passed by the city council of the city of Des Moines on the 27th day of December, 1910, being an ordinance entitled:

108 "An ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the city in supplying or distributing such gas, and prescribing penalties for the violation thereof."

And the said writ remain in force until the further orders of this court.

To the end that the rights of the respective parties may be and remain in statut quo pending the final hearing, it is further ordered, complainant consenting thereto, that until the further orders of the court in the premises it shall continue the manufacture, sale and distribution of gas in the city of Des Moines under and in accordance with the provisions of the ordinances of the city of Des Moines in

effect on the 27th day of December, 1910, prior to the passage of the ordinance on December 27th, 1910, above referred to by title and date of passage. That it shall be permitted to charge and receive for gas sold and distributed by it at the rate of one dollar and ten cents per thousand cubic feet, provided that on all bills paid on or before the 15th day of the month following the month in which the gas was used, a discount of ten cents per thousand cubic feet shall be allowed, and shall continue the payment to the city of the two per cent license fee for use of streets in distributing gas provided in the ordinances of the city prior to the passage of the said ordinance of December 27, 1910, but in the event the said ordinance of December 27th, 1910, is held valid, then on final decree the amounts of license fee from January 1st, 1911, shall be adjusted on the basis of said ordinance. Provided, however, that in the event that it shall be determined by the final decree in this cause that said ordinance of December 27th, 1910, is valid, that complainant shall refund on demand to the persons by whom payment was made, all sums of money collected by it for gas sold and delivered from
109 and after the first day of January, 1911, in excess of the rate specified in the said ordinance of December 27th, 1910. That the bond required to be given by complainants shall, in addition to the usual provisions of such bonds, be conditioned for the performance of the obligations hereby imposed upon the complainant.

It is further ordered that defendants' demurrer to the complainant's bill of complaint is over-ruled pro forma and without passing upon the merits of the questions thereby presented. To the end that a speedy determination of this controversy may be had, it is further ordered, by and with the consent of both parties, that the defendants shall file aswer to the bill of complaint as amended by the first day of February, 1911, and complainants shall plead thereto within five days thereafter.

It is further ordered that this cause be referred to a special master to be later appointed to take the evidence and report his findings of fact and conclusions of law. The taking of said testimony to be begun at Des Moines on the first day of March, 1911, and continue with all reasonable diligence until completed. The master shall file his report containing his findings of fact and conclusions of law thirty days prior to the first day of the May, 1911, session of this court at Des Moines.

Signed this 6th day of January, 1911.

(Signed) SMITH McPHERSON, *Judge.*

(Ent. Record V. P. 170.)

110 *Extract from the Record Book of the Board of Trustees of the American Surety Company of New York.*

The first quarterly meeting of the Board of Trustees of the American Surety Company of New York, after the annual Stockholder's meeting, was held at the office of the Company, No. 100 Broadway,

New York City, on Wednesday, January 19, 1910, at 12 o'clock noon.

"The Secretary read the report of the Nominating Committee as follows:

"To the Board of Trustees of the American Surety Company of New York.

"GENTLEMEN: The Committee appointed by the Executive Committee of this Company at their meeting held Tuesday, December 14, 1909, for the purpose of nominating officers of the Company, * * * for the ensuing year and until their successors are elected, beg leave to report as follows:

"We nominate for * * *

Place.	Resident Vice Presidents.	Resident Assistant Secretaries.
Des Moines, Ia.	Jos. G. Rounds. Chas. H. Martin. Arthur Reynolds. E. D. Samson. F. H. Noble.	F. H. Noble. E. D. Samson. B. C. Mather.

* * * * * * *

"Whereupon, it was "Resolved, that the Secretary be authorized to cast one ballot on behalf of the Trustees present for the officers, members of the Executive Committee, Finance Committee, Committee on Accounts, Committee on Capital Box, and Counsel, as recommended by the Nominating Committee for the ensuing year, which was done, and thereupon the aforementioned persons were declared to have been unanimously elected to their respective offices for the ensuing year.

* * * * * * *

"The following resolution was adopted:

"Resolved, that the Resident Vice Presidents be and they hereby are, and each of them is hereby, authorized and empowered to execute and deliver and to attach the seal of the Company to any and all obligations for or on behalf of the Company, such obligations, however, to be attested in every instance by the Resident Assistant Secretary."

* * * * * * *

STATE OF NEW YORK,
County of New York, ss:

I, F. J. Parry, Assistant Secretary of the American Surety Company of New York, do hereby certify that I have compared the foregoing extracts and transcripts, from the Record Book of the Board of Trustees of the American Surety Company of New York, with the original record of said Board, and that the same are correct extracts and transcripts therefrom as they appear of record and are set forth and contained in said Record Book; and I further certify that I have compared the foregoing resolutions with the originals thereof, as

recorded in the Minute Book of said Company, and do certify that the same is a correct and true transcript therefrom, and of the whole of said original resolutions; and that the said resolutions have not been revoked or rescinded.

Given under my hand and the seal of the Company, at the City of New York, this 28th day of July, 1910.

[Seal American Surety Company.]

(Signed) F. J. PARRY,
Assistant Secretary.

111 & 112 And thereafter to-wit: On the 18th day of January A. D. 1911 there was filed in said cause the Subpœna in Chancery with the Marshal's return of service thereon which said Subpœona in Chancery is in words and figures as follows to-wit:

(Omitted in printing per stipulation.)

* * * * * * *

113 And thereafter to-wit: On the same day January 18th, 1912 there was filed in said cause the Writ of Temporary Restraining Order with the Marshal's return of service thereon which said Writ of Temporary Restraining Order is in the words and figures as follows:

114 (Copy.)

#71-M. Equity.

UNITED STATES CIRCUIT COURT,
Central Division, Southern District of Iowa, ss:

To The President of the United States to the City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, clerks, attorneys, agents, servants and workingmen, Greeting:

Whereas, Des Moines Gas Company has exhibited its Bill of Complaint to the Honorable Smith McPherson, one of the Judges of our Circuit Court of the United States for the Southern District of Iowa, against you praying to be relieved touching certain matters therein compalined of; and

Whereas, by an order of said Judge, entered on the 31st day of December, A. D. 1910, it was ordered that a restraining order issue under the seal of said Court to restrain you, and each and every one of you, from doing the things complained of in said bill of complaint.

We, therefore, in consideration thereof, do strictly command you, and each of you, the said City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, your clerks, attorneys, agents, servants and working men, under the pains and penalties which may fall upon you and each of you

in case of disobedience, that pending the hearing of the said application for a temporary injunction, and until the further orders of the Court, that defendants and each of them be restrained from putting into effect or in any wise enforcing the provisions of said ordinance passed by the City Council of the City of Des Moines on the 27th day of December, 1910, being an ordinance entitled "An Ordinance to fix the price of gas supplied or distributed to the City of Des Moines or its inhabitants, and to prescribe the payment of a license of occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for a violation thereof." And the court being advised, it is ordered that said motion for temporary injunction be heard at Council Bluffs, Iowa, on the 6th day of January, 1911, at 10 o'clock A. M.

Hereof, you are not to fail at your peril.

To the marshal of the Southern District of Iowa to execute and to make due return hereon how you have executed this, our writ:

Witness, The Honorable John Marshall Harlan, Senior Associate Justice of the United States, at Des Moines, in said District, on this 31st day of December, A. D. 1910.

[Seal U. S. Circuit Court, Southern District of Iowa.]

(Signed) WM. C. McARTHUR,
Clerk U. S. Circuit Court, Southern District of Iowa.

(Filed Jan. 18, 1911. Wm. C. McArthur, Clerk.)

115 *Marshal's Return.*

This writ came into my hands for service on the 31st day of Dec., 1910, and served the same on the within named persons as follows, to-wit: On the city of Des Moines by delivering a true copy to James R. Hanna, Mayor of said city, on Zell G. Roe, J. W. Ash, John MacVicar, C. W. Schram, James R. Hanna, and R. O. Brennan, city solicitor, by delivering a true copy to each of them on the 31st day of December, 1910, at Des Moines, Iowa.

FRANK B. CLARK,
U. S. Marshal,
(Signed) By GEO. E. BIDWELL, *Deputy.*

116 And thereafter to-wit: On the 24th day of January, A. D. 1911, there was filed in said cause the Writ of Temporary Injunction with the Marshal's return of service thereon which said Writ of Temporary Injunction is in words and figures as follows to-wit:

117 UNITED STATES CIRCUIT COURT,
Central Division, Southern District of Iowa, ss:

To The President of the United States to City of Des Moines, James R. Hanna, as Mayor of the City of Des Moines; J. W. Ash, Zell G. Roe, John MacVicar, and C. W. Schramm, as members of the City Council of the City of Des Moines, and R. O. Brennan, as City Solicitor, clerks, attorneys, agents, servants and workingmen, Greeting:

Whereas, Des Moines Gas Company has exhibited its bill of complaint to the Honorable Smith McPherson, one of the Judges of our Circuit Court of the United States for the Southern district of Iowa, against you praying to be relieved touching certain matters therein complained of and,

Whereas, by an order of said Judge, entered on the 6th day of January, A. D. 1911, it was ordered that a temporary injunction issue under the seal of said Court to restrain you, and each and every of you, from doing the things complained of in said bill of complaint.

We therefore, in consideration thereof, do strictly command you, and each of you, the said City of Des Moines, James R. Hanna as Mayor of the City of Des Moines, J. W. Ash, Zell G. Roe, John MacVicar and C. W. Schramm as members of the City Council of the City of Des Moines, and R. O. Brennan as City Solicitor, your clerks, attorneys, agents, servants and workingmen, under the pains and penalties which may fall upon you and each of you in case of disobedience, that you forthwith cease and desist from putting into effect or in any wise enforcing or attempting to enforce the provisions of the ordinance referred to in the bill of complaint passed by the City Council of the City of Des Moines on the 27th day of December, 1910, being an ordinance entitled "An ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas, and prescribing penalties for the violation thereof," and that said writ remain in force until the further order of the court.

Hereof, you are not to fail at your peril.

To the marshal of the Southern District of Iowa to execute and to make due return hereon how you have executed this, our writ.

Witness, The Honorable Edward D. White, Chief Justice of the United States at Des Moines, in said District, on this 13th day of January, A. D. 1911.

[SEAL.] WM. C. McARTHUR,
Clerk U. S. Circuit Court, Southern District of Iowa,
By HATTIE BLANK, *Deputy.*

[Endorsed:] No. 71-M. Eq. Injunction. Circuit Court of the United States, Southern District of Iowa, Central Division. Des

Moines Gas Company vs. The City of Des Moines et al. Filed January 24th, A. D. 1911. Wm. C. McArthur, Clerk. By —— ——, Deputy. Carr, Carr & Evans et al., Comp't's Sol. Residence, Des Moines, Iowa.

I received this writ January 14, 1911, at Des Moines, Iowa; the same day at Des Moines, Iowa, I served it on the City of Des Moines, Iowa, by delivering a copy hereof to James R. Hanna, Mayor thereof—and on James R. Hanna, Mayor, and on C. W. Schramm, Councilman, by delivering a copy to each personally. On January 16, 1911, I served this writ on Zell G. Roe and on R. O. Brennan, and on January 17, 1911, on J. W. Ash—all being served at Des Moines by delivering a copy hereof to each.
$12.36 Fees, .15 Exp.

FRANK B. CLARK,
U. S. Marshal,
By FRANK A. NICHOL, *Deputy.*

118 And thereafter to-wit: On the 31st day of January, A. D. 1911, there was filed in said cause the Answer of the defendants to the Bill of Complaint and the Amendment to the Bill of Complaint which said Answer is in the words and figures as follows to-wit:

119 Filed Jan. 31, 1911. Wm. C. McArthur, Clerk.

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

#71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Answer.

The Answer of the Above-named Defendants to the Bill of Complaint and Amendment to Bill of Complaint.

I.

The defendants, the City of Des Moines, James R. Hanna, John MacVicar, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, reserving all manner of exceptions that may be had to the uncertainties and imperfections of the bill and the amendment to the bill, come now and answer thereto or to so much thereof, as they are advised is material to be answered and say:

That they both generally and specifically deny each and every

allegation in said bill of complaint and amendment thereto contained as fully and completely, and to the same extent, as if each allegation thereof were separately traversed and in like manner denied, save and except such matters only as are hereinafter in this answer expressly admitted.

II.

The defendant City of Des Moines, admits that it is a municipal corporation organized and existing under the laws of the State of Iowa, and is located in the Southern District of said State,
120 and alleges that for more than twenty-five (25) years prior to the sixth day of April, A. D., 1908, defendant was organized as a city of the first class, and is now, and at all times since the first Monday of April, 1908, has been organized as a city under the provisions of Chapter Forty-eight (48), Acts of the Thirty-second (32) General Assembly of Iowa, as the same appears in Chapter Fourteen-*c* (14-*c*) of Title V (5) of the Supplement to the Code, 1907, and acts amendatory thereof, being Chapter Sixty-four (64) of the Acts of the Thirty-third (33) General Assembly of Iowa.

III.

These defendants admit that said James R. Hanna is Mayor of the City of Des Moines, that John MacVicar, C. W. Schramm, J. W. Ash and Zell G. Roe are members of the City Council of the City of Des Moines and that R. O. Brennan is the City Solicitor thereof; and admit that the amount in controversy exceeds two thousand dollars ($2,000.00) exclusive of interest and costs. Defendants admit that the Complainant, Des Moines Gas Company, is a corporation for pecuniary profit under the laws of Iowa, with its principal place of business at the City of Des Moines in said State. That whether complainant, Des Moines Gas Company, under and by virtue of its charter and articles of incorporation is empowered to construct, own, operate and maintain gas works in the City of Des Moines, defendants have neither knowledge nor information sufficient to form a belief.

Defendants admit that the complainant, Des Moines Gas Company, is maintaining and operating gas works in the City of Des Moines, and admit that said gas works are substantially as described in the bill and consist of the manufacturing plant, holders, mains, pipes and certain other property, but deny that said gas works and the property connected with or belonging thereto exceeds in value the sum of two million seven hundred thousand dollars ($2,700,000.00) as is alleged in the original Bill of Complaint, or exceeds in value the sum of four million ninety-two thousand Dollars ($4,092,000.00) as is alleged in the amendment to the Bill of Complaint,
and defendants aver and charge the fact that said sums are
121 each largely in excess of the true value of said gas works and the property connected with or belonging thereto actually and necessarily used in manufacturing and distributing gas for illuminating and fuel purposes to consumers.

IV.

Defendants do not have knowledge nor information sufficient to form a belief as to the actual amount of complainant's operating expenses, and deny that the operating expenses of complainant, and the amount of its income are as stated in the bill; deny that complainant is entitled to have deducted annually for depreciation the sum of Eighty-three thousand six hundred eight Dollars ($83,-608.00).

Defendants deny that a rate of one dollar ($1.00) per thousand cubic feet for gas yields an income on the investment far below the interest earning upon similar investments in the City of Des Moines, and allege that said rate was much higher and largely in excess of the rate and price necessary to produce and afford a reasonable compensation and return to complainant for the gas furnished and service rendered, by or from said gas works, and for the use of the property actually and necessarily used in the operation of said gas works in the manufacture and distribution of gas to consumers.

V.

Defendants admit that on the 27th day of December, 1910, the City Council of the City of Des Moines passed Ordinance No. 1767 entitled, "An Ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporations, occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for a violation thereof," and allege that said ordinance was passed in the proper exercise of the legislative powers and authority duly vested in the City of Des Moines by the statutes and laws of the state of Iowa, and under the power and authority duly conferred to regulate and fix the rates
122 and prices to be paid for gas furnished for public and private use.

Defendants deny that said ordinance prescribes a rate that is unreasonable; deny that the enforcement of said ordinance will amount to the taking of complainant's property for public use without just compensation, and that it will operate as confiscation of the property of complainant. Deny that the enforcement of said ordinance will deprive complainant of its property without due process of law, and will deny to complainant equal protection of the law, or will impair the obligation of any contract, or will deprive complainant of any of the benefits or immunities guaranteed by the Constitution of the United States; and defendants deny that the rate for gas in said ordinance provided, to wit: ninety cents (90c.) per thousand cubic feet, will, if enforced, be insufficient to afford an adequate return or reasonable and just compensation, and allege that the rate in said ordinance provided, will, if enforced, afford reasonable or adequate compensation and return for all gas furnished and service rendered, and the return derived from the operation of complainant's gas works and business under said rate, will be ample to afford

a reasonable and adequate return upon the value of said gas works, upon the capital actually invested, and upon the property actually and necessarily used in the operation thereof.

Defendants deny that the limit of consumption of gas in the City of Des Moines has been practically reached, and will not be increased by a lowering of the rate as prescribed in the ordinance in controversy, and allege that the rate adopted by the City Council of the City of Des Moines as provided in said ordinance if given a fair test will result in a very material increase in the amount of gas consumed in the City of Des Moines, and the complainant will, if said ordinance is enforced, very materially increase its earnings and income on account thereof; that the cost to complainant of furnishing such increased amount of gas occasioned by the passage of said regulatory ordinance will be much less in proportion to the increased amount of gas consumed under said ordinance, and that the rate fixed in said ordinance complained of, will, if enforced, afford
123 reasonable and adequate remuneration or return to the complainant after providing for all reasonable expense of operation, taxes, depreciation and all other expenses and charges necessary to be provided for.

VI.

Defendants admit that at the time the complainant exhibited its Bill of Complaint in this case, there was an ordinance of the City of Des Moines permitting complainant to charge and receive for gas furnished by it to the City of Des Moines or its inhabitants, one dollar per thousand cubic feet when payment was made on or before the 15th day of the month following that in which the gas was consumed, and one dollar and ten cents ($1.10) per thousand cubic feet where payment was made subsequent to the 15th day of the month following that in which the gas was consumed, but defendants allege that the said ordinance by its terms expired January 1, 1911.

VII.

Defendants deny that the ordinance of which complaint is made in the bill was passed by the council of the defendant City of Des Moines without making any investigation as to whether the rate fixed therein was fair, just and compensatory, and allege that said ordinance was duly and legally adopted by the City Council of the defendant City of Des Moines in the exercise of its legislative functions, and in the legitimate exercise of governmental powers, and deos not deprive complainant of any rights or privileges to which it is entitled under the constitution of the United States, in that said ordinance grants to complainant just reward upon the value of its gas works, upon its capital actually invested, and upon the property actually and necessarily used in the operation of said gas works and rendering the service in manufacturing and distributing gas for illuminating and fuel purposes to consumers; and defendants deny each and every allegation in the bill or amendment thereto which is inconsistent with or controverts any of the above statements.

124 Defendants having thus made full answer to all matters and things contained in the bill and the amendment to the bill, pray to be dismissed hence with their costs in this behalf incurred.

(Signed) R. O. BRENNAN,
(Signed) H. W. BYERS,
Solicitors for Defendants.

125 And thereafter to-wit: On the 4th day of February A. D. 1911 there was filed in said cause the Replication of the complainant to the answer of the defendants which said Replication is in the words and figures as follows to-wit:

126 In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

71–M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Filed Feb. 4, 1911, Wm. McArthur, Clerk, By Lewis J. Adelman, Deputy.

Replication of the Above-named Complainant to the Answer of the Above-named Defendants.

This repli-ant, saying and reserving to itself all and all manner of advantages of exception which may be had and taken to the manifold errors, uncertainties and insufficiencies of the answer of the defendants, for replication thereunto saith that it doth and will aver, maintain and prove its said bill to be true, certain and sufficient in the law to be answered unto by said defendants, and that the answer of the said defendants is very uncertain, evasive and insufficient in law to be replied unto by this repli-ant; without that, that any other matter or thing in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed, or denied, is true; all of which matters and things this repli-ant is ready to aver, maintain, and prove as this honorable Court shall direct and humbly prays as in and by its said bill it hath already prayed.

CARR, CARR & EVANS,
READ & READ AND
GUERNSEY, PARKER & MILLER,
Solicitors for Complainant.

127 And thereafter to-wit: On the 16th day of May A. D. 1911 there was filed in said Court an Order appointing Robert Sloan Esq., Special Master in Chancery which said order is in the words and figures as follows to-wit:

128 In the Circuit Court of the United States, Southern District of Iowa, Central Division.

No. 71–M. In Equity.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Order.

The Court hereby appoints Robert Sloan, Esq., of Keosauqua, Iowa, as Special Master herein. He will have the hearing in the United States Court Room at Des Moines, Iowa. He will call to his aid a stenographer and have all the oral testimony transcribed and report the same, together with all exhibits and documentary evidence, to the court. He will make findings of fact and adopt conclusions of law and report the same to the court, together with such decree as he may recommend. All of which he will do more than thirty days prior to the next term of this Court. He, after consultation with counsel, will fix the time for the said hearing.

Done in open court, this 16th day of May, A. D. 1911.

(Signed) SMITH McPHERSON, *Judge.*

Filed May 16 1911.

W. C. McARTHUR, *Clerk.*

129 And thereafter to-wit: On the 20th day of May A. D. 1911 there was filed in said cause the oath of office of Robert Sloan, Esq., Special Master in Chancery which said oath of office is in the words and figures as follows to-wit:

130 In the Circuit Court of the United States, Southern District of Iowa, Central Division.

No. 71–M. In Equity.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Oath of Office.

UNITED STATES OF AMERICA,
Southern District of Iowa, Van Buren County, ss:

I, Robert Sloan, having been appointed by said Court as Special Master in said case, do hereby accept the said appointment.

And I, Robert Sloan, on my oath, do say that I will support the Constitution of the United States, and that I will perform the duties of Special Master in said case to the best of my ability, skill and understanding; so help me God.

(Signed) ROBERT SLOAN.

Subscribed in my presence and sworn to before me by him, the said Robert Sloan, this May 16", A. D. 1911.

[SEAL.] (Signed) B. B. TRUAX,
Clerk, District Court, Van Buren County, Iowa.

(Endorsed:) Filed May 20, 1911. Wm. C. McArthur, Clerk, By Louis J. Adelman, Deputy.

131 And thereafter to-wit: On the 12th day of July A. D. 1911 there was filed in said cause an Order of Robert Sloan, Special Master in Chancery setting the time for the hearing of said cause which said order is in the words and figures as follows to-wit:

132 (In Duplicate.)

In the Circuit Court of the United States, Southern District of Iowa, Central Division.

No. 71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, R. O. Brennan, Defendants.

Order.

Pursuant to the authority and directions contained in an order made in the above cause by the Circuit Court of the United States, Southern District of Iowa, Central Division, Hon. Smith McPherson, Presiding Judge, on the 16th day of May, A. D. 1911, appointing the undersigned Special Master therein, with direction to fix the time for hearing, after conference with counsel;

Now, therefore, after conference with counsel for the complainant and defendants heretofore had, and agreement therein made, it is hereby ordered that said cause be set for hearing before the undersigned in the United States Court Room at Des Moines, Iowa, commencing on the 12th day of July, A. D. 1911, at 10 o'clock A. M. of said day, and continuing from day to day until the same has been fully completed as provided by said order.

Witness my hand this 15th day of June, A. D. 1911.

(Signed) ROBT. SLOAN,
Special Master.

The above named complainant and defendants are hereby notified of the above order, and are hereby summoned to appear at the time

and place therein fixed and proceed with the hearing of said cause as provided by said order of reference.

Witness my hand this 15th day of June, A. D. 1911.

(Signed) ROBT. SLOAN,
Special Master.

133 We, the undersigned solicitors for the complainant, do hereby acknowledge due, legal and timely service of the foregoing order and summons for ourselves and the complainant at Des Moines, Iowa, this 17th day of June, A. D. 1911.

CARR, CARR & EVANS,
GUERNSEY, PARKER & MILLER.
READ & READ.

The undersigned solicitors for defendants hereby acknowledge due, legal and timely service of the foregoing order and summons for defendants and ourselves at Des Moines, this 23rd day of June 1911.

(Signed) ROBERT BRENNAN,
H. W. BYERS,
Solicitors for Defendants.

Filed July 12, 1911. Wm. C. McArthur, Clerk, By Louis J. Adelman, Deputy.

134 And thereafter to-wit: On the 30th day of October A. D. 1911 there was filed in said cause a Notice that application for an order directing the Complainants to turn over certain exhibits to the defendants will be filed which said Notice is in words and figures as follows to-wit:

In the Circuit Court of the United States in and for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, Defendants.

On Hearing Before Hon. Robert Sloan, Special Master.

Notice.

To Des Moines Gas Company, Complainant, or George H. Carr, W. L. Read, N. T. Guernsey, Its Counsel of Record:

You will please take notice that application for an order directing the complainant and its officers to turn over and deliver to defendants' counsel certain exhibits will be filed with his Honor, Robert Sloan, Special Master herein, a copy of which application and

motion is hereto attached for your information. Said application will be presented on the 27th day of October, 1911, or as soon thereafter as practicable, to his Honor, Judge Sloan, Special Master.

(Signed) ROBERT O. BRENNAN.
H. W. BYERS.
ESKIL C. CARLSON.

Service of the foregoing notice is hereby accepted and receipt of copy of the application therein referred to acknowledged this 25 day of October, 1911.

(Signed) GEO. H. CARR.
W. L. READ.
N. T. GUERNSEY.

(Endorsed:) Filed Oct. 30, 1911. Wm. C. McArthur, Clerk, By Louis J. Adelman, Deputy.

135 And thereafter to-wit: On the same day October 30th A. D. 1911 there was filed in said cause an Application for order requiring the complainant to turn over certain exhibits to the defendants which said Application is in the words and figures as follows to-wit:

In the Circuit Court of the United States in and for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
v.
CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, Defendants.

On Hearing before Hon. Robert Sloan, Special Master.

Application for an Order Directing the Officers of the Complainant Company to Deliver to Counsel for Defendants Certain Exhibits.

The defendants respectfully move the Master for an order herein directing Mr. Jansen Haines the President of Complainant Company, and one of the witnesses herein, to turn over and deliver to counsel for the defendants Defendants' Exhibits Nos. 27 and 28; Exhibit No. 27 being the Des Moines Gas Company's stockholders' and directors' Minute Book with opening entry under date of March 1, 1906; Exhibit 28 being loose leaf or draft of Minutes of stockholders' and directors' meeting of the Des Moines Gas Company, commencing with entries under date of April 24, 1911; and as grounds therefor states:

That Exhibits 27 and 28 contain the record and minutes of the action of the stockholders and directors of the Des Moines Gas

Company covering a period beginning about March 1, 1906, to and including July 24, 1911. That both of said exhibits were offered in evidence in this case by the defendants for the purpose of assisting the Master and counsel in ascertaining the value of complain-
136 ant's property used by it in the manufacture and distribution of gas in the city of Des Moines, and in so far as possible showing the receipts and expenditures for all purposes of the said complainant Gas Company in the operation of its plant in the defendant City. That these two exhibits are made up and composed of several hundred pages, upon each page of which are numerous entries.

That said exhibits have not been copied into the record so far made in this case, nor does your applicant have copies thereof.

That on the 14th day of October, 1911, the further hearing in this cause was postponed to be resumed on the 14th day of November; that said postponement was ordered largely, if not entirely, for the purpose of giving counsel on both sides time and opportunity to make preparation for oral presentation of their respective sides to your Honor; that in making such preparation counsel for your applicant finds it not only important but necessary to have access to said exhibits 27 and 28, and to make constant reference thereto.

That both of said exhibits are in the possession and under the control of Mr. Jansen Haines, president of the complainant Company; that on or about the 21st instant Mr. Eskil Carlson of counsel for the defendant called upon Mr. Haines and asked for said exhibits for use in preparing the argument for the defendant, stating to Mr. Haines at the time that the exhibits would be returned each night for safe keeping. That the said Haines refused to permit counsel to have said exhibits, but offered to permit counsel to examine the exhibits and have access to them in the office of the complainant Company.

That upon the refusal of the said Haines so made as above stated, request was made of Mr. George H. Carr, counsel for the complainant company for said exhibits, and Judge Carr, as your
137 applicant is informed and believes, stated to said Haines that if he had charge of said exhibits he would not hesitate to permit counsel for the defendant to take the same, but, notwithstanding such suggestion by counsel the said Haines refused to allow counsel for defendants to take said exhibits and still refuses.

The defendants further state that said exhibits contain items of competent and material evidence not only important but vital to an intelligent and just determination of the issues in this case. That on account of the large number of exhibits and the great mass of evidence and records as well as on account of other engagements and demands upon the time of defendants' counsel it is neither convenient nor possible for them to go to complainant's office to prepare for the final presentation of this case to your Honor.

Wherefore, The defendants pray that an order be made and endorsed hereon commanding and directing the complainant Company and the said Jansen Haines, its president, to forthwith turn over and deliver to counsel for the defendants the said exhibits 27

and 28 for such time and under such conditions as to your Honor may seem appropriate and just under all the circumstances.

(Signed) ROBERT O. BRENNAN,
H. W. BYERS,
ESKIL C. CARLSON,
Solicitors for Defendants.

UNITED STATES OF AMERICA,
Southern District of Iowa, ss:

I, Eskil Carlson, being duly sworn upon oath depose and say; that I am one of the counsel for the defendants, that I have read and know the contents of the foregoing application, and that the statements and averments above are true as I verily believe.

(Signed) ESKILL CARLSON.

138 Subscribed and sworn to before me by the said Eskil Carlson this 25th day of October, 1911.

[SEAL.] (Signed) R. H. GOLDSMITH,
Notary Public.

(Endorsed:) Filed October 30/11. Wm. C. McArthur, Clerk.

139 And thereafter to-wit: On the same day October 30th, A. D. 1911 there was filed in said cause a Resistance to the Application for an order requiring the Complainant to turn over certain exhibits to the defendants which said Resistance is in the words and figures as follows to-wit:

140 In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainants,
vs.
CITY OF DES MOINES et al., Defendants.

Resistance to Application for an Order Directing Jansen Haines, President of Complainant, to Turn Over and Deliver to Counsel for Defendants, Defendants' Exhibits 27 and 28.

Complainant respectfully resists the application of defendants for an order requiring it to turn over and deliver to counsel for defendants, defendants' Exhibits 27 and 28, for the reasons set forth in the affidavits hereto attached, and for the further reason that counsel for defendants are not entitled, as a matter of right, to take these exhibits into their custody, but are only entitled to an order directing complainant to deposit the documents in the hands of the clerk of this court, with leave to the defendants to inspect them and take copies. In this case no such order is necessary, as full op-

portunity is offered defendants to inspect them and to take copies if they desire.

(Signed) W. L. READ,
N. T. GUERNSEY,
GEO. H. CARR,
Solicitors for Complainant.

(Endorsed:) Filed Oct. 30/11. Wm. C. McArthur, Clerk.

141 UNITED STATES OF AMERICA,
Southern District of Iowa, County of Polk, ss:

I, Geo. H. Carr, being duly sworn, depose and say that on the 21st day of October, 1911, Mr. Eskill Carlson, one of the counsel for defendants herein, called at my office; he stated that he had just come from Mr. Haines' office; that he had requested from Mr. Haines that he be permitted to take to the office of counsel for defendants, defendants' exhibits 27 and 28, Exhibit 27 being the Des Moines Gas Company Stockholders and Directors Minute Book, with opening entry under date of March 1st, 1905; Exhibit 28 being loose leaves or drafts of the minutes of the stockholders and directors meetings of the Des Moines Gas Company; and that Mr. Haines had declined to permit the exhibits to be taken from his custody, but that he had offered to afford every facility to counsel for defendants to examine the records at the office of the Company. I asked Mr. Carlson what the objection was to that, and he stated that it would subject them to some inconvenience. I then went down to Mr. Haines' office and had an interview with him. He told me, as set forth in his affidavit hereto attached, that he had told Mr. Carlson he would produce the exhibits at the office of the Company for the inspection of counsel for defendants, giving them every facility and every opportunity for making as full and thoro an examination of the exhibits as they might desire, and would permit them to copy the same or any portion thereof, if they desired. He stated that his reasons for not turning the records over to the possession of counsel for defendants were that they were the only copies the company had of the minutes of the Meetings of its stockholders and board of directors; that they were of the greatest value to the company and could not be replaced; that they had been entrusted to his care, and

142 that he felt personally responsible for their safe keeping, and that unless it was his duty to permit them to go out of his custody, he did not want to do so, at the same time telling me that if I directed him to turn them over, he would do so. I told Mr. Haines that I did not think they were entitled to take them from his custody as a matter of right, and that feeling the personal responsibility he did as to their safe keeping, I would not direct him to surrender their custody, in view of the fact that he had offered to afford every facility for their examination at the offices of the Company, and that counsel for defendant would be put to only a slight inconvenience in making the examination at the offices of the Company.

I thereupon returned to the office and advised Mr. Carlson of the result of the interview, telling him I did not think, under the circumstances, that I ought to ask Mr. Haines to permit the records to leave his custody.

And further deponent saith not.

(Signed) GEO. H. CARR.

Subscribed and sworn to before me by the said Geo. H. Carr this 26th day of October, 1911.

[SEAL.] (Signed) GENEVIEVE WILLIAMS,
Notary Public, Polk County, Iowa.

(Endorsed:) Filed October 30/11. Wm. C. McArthur, Clerk.

143 In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,

vs.

THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe and R. O. Brennan, Defendants.

Affidavit of Jansen Haines.

UNITED STATES OF AMERICA,
Southern District of Iowa, County of Polk, ss:

On the 21st day of October, 1911, Mr. Eskil Carlson, Assistant City Attorney, called at my office and stated that General Byers, Corporation Counsel, had sent for the minute book and loose leaves of minutes of the stockholders and Board of Directors of the Des Moines Gas Company. I told Mr. Carlson that I would let Mr. Byers come to the office and examine these exhibits and make notes or memoranda, or copy them, but I did not want to let them go out of the office, as they were valuable records. I repeated that I would provide every facility for Mr. Byers to examine and copy the exhibits at the office at any time.

A few minutes later Judge Carr came in and stated that Carlson had been to see him about these exhibits, and I told Judge Carr of my interview with Mr. Carlson and what I had said. I told Judge Carr my reasons for not giving up these records, which were that they are the only records that this company has of the minutes of the meetings of its stockholders and Board of Directors; that the books were intrusted to my custody and that I was personally responsible for them; that they could not be replaced if lost or destroyed, and that unless it was clearly my duty I would not give them up; but that I would, if he directed me to do so. Judge Carr stated to me that what I had done was proper, and that he would not direct me to give them up.

I have at all times during this trial provided three suitable private

rooms, which were at the disposal of the City's accountants,
144 engineers or attorneys, for the examination of our papers and records, and have provided light, heat and suitable chairs, tables and stationery for the defendants in this case, and they have frequently availed themselves of these facilities for the examination of our records. The City Attorney's offices are but a few minutes walk from these offices, and these offices are open from nine o'clock in the morning to six o'clock in the evening, after which time the records are placed in fireproof vaults till morning.

(Signed) JANSEN HAINES.

Subscribed in my presence and sworn to before me by the said Jansen Haines this 26th day of October, A. D. 1911.

[SEAL.] (Signed) KATHERINE HARRIS,
Notary Public in and for Polk County, Iowa.

Filed Oct. 30 1911. Wm. C. McArthur, Clerk.

145 And thereafter to-wit: On the same day October 30th, A. D. 1911 there was filed in said cause an order of Hon. Robert Sloan, Special Master in Chancery requiring the Complainant to turn over the said certain exhibits to the defendants which said Order is in the words and figures as follows to-wit:

146 In the Circuit Court of the United States for the Southern District of Iowa, Central Division.

DES MOINES GAS CO.
vs.
THE CITY OF DES MOINES et al.

Order.

The Defendants apply for an order in the above entitled case, requiring Jansen Haines, President of the Complainant Co., to turn over and deliver to counsel for the defendants, Defendants' Exhibits No-. 27 and 28, offered in evidence in the above entitled case on the hearing thereof, before the undersigned Special Master. Exhibit "27" is the record of complainant company for the stockholders and directors' meetings and proceedings, and, "Dtf'ts' Ex. 26" is the draft of minutes of stockholders' and directors' meetings not yet recorded in book "ex. 27."

These exhibits are now part of the records of the Court in said case, and under the custody of the court, and neither party has the right to take them, therefrom, without leave of court, so to do; but it is usual to permit counsel so to do, to enable them properly to prepare their argument and evidence in the case. In my judgment they will be perfectly safe, in the custody of either counsel for complainants or of the defendants, and, that the order hereinafter made is perfectly legal and proper.

Jansen Haines has no right to take them from the court except by leave, and he has no right to demand that counsel for defendants should only be allowed to examine them in his office.

It is therefore ordered that the said Jansen Haines, on or before the 31st day of October, A. D. 1911, deposit with the Clerk of the United States Circuit Court at his office in the City of Des Moines, Iowa, "Def'ts' Ex. No-. 27 & 28," there to remain until
147 otherwise ordered by the court, with the right, however, for counsel for the complainants or of counsel for defendants, freely to make an examination of said exhibits, and the clerk of the court will receipt therefor and retain custody thereof, until, after otherwise ordered by the court, except as herein otherwise ordered.

It is, however, further provided and leave is hereby granted to the clerk, aforesaid, to permit counsel for the defendants to withdraw said exhibits from the records and retain possession thereof for four days, taking their receipt therefor, they becoming responsible therefor and for their safe keeping and rquiring said counsel to return said exhibits within the time above provided. To give counsel for complainants an opportunity to examine said exhibits, counsel for the defendants are required to exercise their right to withdraw said records between the 30" day of Oct. A. D. 1911, and the 7th day of November, A. D. 1911, and counsel for complainants between Nov. 6 and Nov. 14, 1911.

Like permission is hereby given to counsel for complainants to withdraw said exhibits, to be exercised within the time above provided.

Signed this 27th day of October, A. D. 1911.

ROBT. SLOAN,
Special Master.

In duplicate.

(Endorsed:) Filed October 30/11. Wm. C. McArthur, Clerk.

148 And thereafter to-wit: On the 5th day of April, A. D. 1912, there was filed in said cause the Report of Robert Sloan, Esq., Special Master in Chancery, which said Report is in the words and figures as follows to-wit:

149 Filed April 5, 1912. Wm. C. McArthur, Clerk, by Louis J. Adelman, Deputy.

In the District Court of the United States in and for the Southern District of Iowa, Central Division. In Chancery.

Number 71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, Defendants.

Report of Robert Sloan, Special Master.

To the District Court of the United States in and for the Southern District of Iowa, Central Division. Hon. Smith McPherson, Judge:

Pursuant to an order of May 16, A. D. 1911, of the Court, the undersigned Special Master, after conferring with counsel for both Complainant and Defendants, duly ordered that the hearing
150 of the above entitled cause before him set for the 12th day of July, A. D. 1911, in the United States court room at Des Moines, Iowa, at 10 o'clock a. m. and issued summons and caused the same to be duly served accordingly on counsel for Complainant and Defendants.

Pursuant thereto at the time and place therein named, the hearing commenced, Complainant apearing by William L. Read, George H. Carr and N. T. Guernsey for their respective firms, and the Defendants by R. O. Brennan, City Solicitor, and H. W. Byers, Corporation Counsel of the City of Des Moines. And thereupon by consent of counsel above named, J. P. Blaise and Frank C. Walrath were duly appointed stenographers to report accurately and correctly the evidence and all the evidence offered in the above entitled cause as per order duly made on the 12th day of July, A. D. 1911, which said appointment was duly accepted by each of them and they were duly sworn and thereupon the hearing and taking of the evidence commenced and continued from time to time until the 29th day of November, 1911, when the arguments were completed and the case finally submitted, all of which will fully appear by the certified transcript of the evidence contained in four separate bound volumes, which together with the exhibits referred to and offered in evidence as shown in said transcripts, constitute and contain all evidence offered on the trial of said case before me by either party and objections of counsel thereto, and such rulings as were made by me therein, during the progress of the trial.

My purpose in this report will be to state my findings of fact and

legal conclusions, with the reasons therefor, in such manner that the Court may readily review them. In other words, to make such a report to the Court as I would desire one were our positions reversed.

In the main the questions of law involved are well settled, hence, no long list of authorities are given in the report.

151 The oral arguments of counsel by agreement were duly reported and transcripts then made and are part of the files in the case, also written briefs of counsel. The costs of reporting and transcribing them are, by agreement, to be taxed as part of the costs in the case.

The initials M. C. F. throughout the report mean one thousand cubic feet in measurement of gas.

152 The Special Master begs leave to report as follows:

1. That the Complainant, the Des Moines Gas Company is a corporation duly organized under the laws of Iowa, on or about the 28th day of February, A. D. 1906, and duly authorized to commence business at the date thereof. (A copy of its Articles of Incorporation are hereto attached, marked "Exhibit 'A'" and made a part of this report.)

2. The Council of the City of Des Moines, on the 27th day of December, duly enacted Ordinance No. 1767, which was duly published and its terms, in force from and after January 1st, 1911. (A copy of said Ordinance marked Exhibit "B" is hereto annexed and made a part of this report.) That prior thereto the Complainant had been operating its plant under the provisions of the Ordinance No. 724, as amended by Ordinance No. 751 of said City. (A copy thereof and amendment thereto marked Exhibit "C" is hereto annexed and made a part of this report.)

3. It appears from the evidence in the case, that the establishment of the Complainant's plant for the manufacture and distribution of gas began during the year 1864. It was owned and operated by the Capital City Gas Light Company, until March 1st, 1906, when the Des Moines Gas Company was duly organized under the laws of Iowa, and the entire property, real and personal, of the Capital City Gas Light Company, duly conveyed to it, and the plant has been owned, controlled and operated by the latter company ever since, and it still owns and controls it. It appears from the evidence that The United Gas Improvement Company of Philadelphia, Pa., became the owner of the entire stock of the Capital City Gas Light Company on or about June 1st, 1886, and its authorized capital stock was

153 then 3,000 shares of par value of one hundred dollars each, and later on, or about the 1st day of May, 1897, by proper proceedings, its capital stock was increased to 6,000 shares of the par value of one hundred dollars each. (Vol. 3, page 3148.) The growth of the City of Des Moines and increased demand for gas rendered it necessary, not only to increase its manufacturing facilities, but also to extend its mains and add many additional house and street lamp services, as well as to install many additional meters. In so doing, the Capital City Gas Light Company became indebted on account for cash advanced, and otherwise, to The United Gas Im-

provement Company to the amount of $105,526.49 (Defendant's Exhibit No. 30, page 3), and also for the 1,132 M. C. F. Holder $103,958, at the time of the organization of the Des Moines Gas Company on the 28th day of February, A. D. 1906. It also owned $400,000 on bonds secured by mortgage on its plant. On the 1st of March, 1906, the Capital City Gas Light Company transferred and conveyed all its property, real and personal, together with its rights, privileges and franchises in the City of Des Moines to the Complainant and passed out of existence. The authorized capital stock of the new company was 22,500 shares of the par value of one hundred dollars each. At the time of this transfer, the new company executed to The United Gas Improvement Company $800,000 stock contracts bearing 6 per cent interest until paid, and also authorized and executed to the Commercial Trust Company of Philadelphia, Pa., a deed of trust to all property of the Des Moines Gas Company transferred to it as aforesaid to secure the payment of $1,500,000 5 per cent gold bearing interest bonds payable semi-annually, which were to be issued as provided by said mortgage. The sum of $240,000 bonds were issued at the date of execution of the mortgage, one-half thereof used in payment of the debt due The United Gas Improvement Company for the 1,132 M. C. F. Holder, and
154 the other to pay the amount due on account to said company.

On the 1st day of January, 1907, there were also issued $400,000 of these bonds to pay the bonds then due of the Capital City Gas Light Company. When the transfer was made $45,000 was issued to pay for the Valley Junction property. This is a town adjacent to Des Moines, and something like six miles from the gas works of the Complainant, to which the gas is transmitted by high pressure mains through the city, by a distribution system therein. No evidence has been introduced of the value of the Valley Junction property, except a high pressure main, which is also used in distributing gas in the city. Extensions and improvements have been made to the works and distribution system since the 1st day of March, A. D. 1906, up to the 1st day of January, A. D. 1911, to the amount of $412,704.51, and as provided by the mortgage bands have been issued by the trustee to the amount of $1,097,000 and these bonds have all been purchased by The United Gas Improvement Company. The total discount on these bonds is $33,950; $267,000 discounted at 10 per cent and the balance, $145,000, at 5 per cent. No dividend had ever been declared by the complainant on its stock but the interest upon the stock contracts and bonds has been regularly paid, and $389,000 has been paid on the principal of the stock contracts, leaving January 1st, 1911, only $411,000 unpaid.

These payments have been made out of the profits derived from the operation of the plant. The Complainant corporation was organized by the direction of its stockholders, and the transfer from the old to the new company was duly authorized by the stockholders The officers of the Complainant are elected by The United Gas Improvement Company, who own and control all the stock, and these officers are in the main, also, officers of The United Gas Improve-

ment Company, and the latter company through them con-
155 trol the Complainant Company and its business But the legal title and ownership of the gas plant, together with its rights, privileges and franchises, is in the Complainant, and it holds the same in trust for its stockholders, as any other Iowa corporation and has the right to maintain any action for the protection thereof, and the real parties in interest are bound by the result thereof.

II.

While the Capital City Gas Light Company owned and operated the gas plant in question there arose a controversy, evidently in regard to the rates which it should charge for gas, and a suit was instituted in this court in relation thereto, but the pleadings and proceedings in said case were not offered in evidence in the case, except a transcript (Defendants' Exhibit Nos. 39 to 42, inclusive) of a part of the evidence which purports to have been offered therein, and hence, the result of said action does not appear except as indicated by Ordinance No. 724, as amended, of the City of Des Moines. (Exhibit "C" to Master's Report.)

The provisions of this ordinance were evidently accepted by the Capital City Gas Light Company and the Company operated, extended and improved their plant thereunder until March 1st, 1906, when it was succeeded by the Complainant, which, since that time and up to the 1st day of January, 1911, has been operated by the Complainant under the provisions of said ordinance.

Among other things therein contained, this ordinance provided as follows:

1. That for the years 1896 and 7 the price of gas should be $1.30 per M. C. F. net; for the years 1898 and 9, $1.25 net; for the years 1900 and 1, $1.20 net; for the years 1902, 3 and 4, $1.15 net; and for the year 1905, $1.10 net; and for the years 1906 to 1910,
156 $1.00 net with the proviso that it may add 10 cents per M. C. F. to each of these prices but shall be required to discount that sum for the payment by or before the 15th day of the month following that in which the gas was consumed.

2. That the City pay for the term of fifteen years for each street lamp, $18.00 per year, until they should reach 500, when it should be reduced to $17.00 for each lamp.

3. That its gas should not be less than 22 candle power.

III.

The City of Des Moines on the 27th day of December, A. D. 1910, passed Ordinance No. 1767, which reduces the price of gas to 90 cents per M. C. F. without the right to add anything for a failure to pay on or before the 15th day of the month following that in which the gas was consumed, and requires the same candle power and the price for suplying the same to the city is also fixed at 90 cents per thousand cubic feet of gas, and requires it to pay, as a license or occupation fee, for its mains and services in the streets and alleys, 2 per cent of its gross receipts beginning January 1st, 1911. This Ordi-

nance, by its terms, applies to all companies manufacturing and distributing gas, but, as there are none other in the city, it practically applies only to the Complainant. The license fee required as above stated is the same as the old ordinance.

This ordinance, as did the old ordinance, denies that the Complainant has a franchise from the city, and provides that it shall not "be construed to in any manner recognize any franchise claimed by any person, firm or corporation to use the streets, highways, alleys, avenues or public places of said city for the purpose of laying or maintaining mains and pipes in supplying or distributing gas to said city or its inhabitants." However, it appears that the Complainant, as well as its predecessor, has been so using its streets,
157 alleys and public places therefor for many years last past, with the full knowledge and consent of the city, and its inhabitants, and has invested a large amount of money in so doing, and has paid the city the two per cent on its gross receipts and still owns and controls the same and has rendered to its customers satisfactory service during the time it has been maintaining and developing its plant and business.

The new ordinance does not deny the right so to do, provided it complies therewith. It would be as bad for the city as for the Complainant to require the Complainant to either abandon the mains or remove them, on the ground that it has no franchise and no right in their use, for the lack of a franchise, and there is no claim to that effect by the city. It is simply, by this ordinance, exercising its power over public utilities to regulate the rate at which the Complainant shall furnish gas to its consumers. This brings us to the real issue in the case, which is:

"The validity of Ordinance No. 1767, enacted December 27th, 1910." Which Exhibit is "B" to this report.

158 *Right to Regulate Rates.*

IV.

There is no question of the right of the city council of the City of Des Moines to regulate the rate at which the Complainant may furnish gas to the city and its inhabitants. It is distinctly conferred by Sections 724 and 725, page 131, Supplement of 1907. The latter section provides also that "these powers shall not be abridged by ordinance, resolution or contract," and hence, the powers confirmed by these sections may be exercised at any time, notwithstanding any previous ordinance, resolution or contract, unless possibly the terms of a contract in existence, at the time of the enactment by the legislature, would be violated thereby. This question, however, is not involved in this action. The power to regulate rates does not carry with it the power to destroy, nor the power to establish rates for any public utility, so low that they would be confiscatory.

The power to establish rates is legislative, and when the rates afford the public utility a reasonable compensation for the use of this property, then, the ordinance by which such rates are estab-

lished, is valid and binding. The proper exercise of this power depends upon facts which are not of common knowledge, but which must be ascertained and determined, with reference to the public utility affected thereby. The value of the property and the cost of manufacturing and distributing gas to its consumers are important factors in a proper exercise of the legislative power conferred by these sections upon the City Council, but the legislature of this state has provided no procedure to be followed by the council in
ascertaining and determining the facts necessary and essen-
159 tial to proper exercise of the power to regulate rates, and
hence, no matter what means the council may adopt for determining them the validity of the ordinance is not affected thereby, unless the rates should be confiscatory. Of course, upon a hearing in which both parties are represented, and evidence heard pro and con in their determination, a strong presumption would arise in favor of the result. The Supreme Court of the United States has so clearly and fully expressed its views on this subject in the opinion delivered in the case of Knoxville Water Co., 29 Sup. Court Reports, 149-154 (212 U. S., 1) that we give the following quotation therefrom:

"Regulation of public service corporations, which perform their duties under conditions of necessary monopoly will occur with great or greater frequency as time goes on. It is a delicate and dangerous function and ought to be exercised with keen sense of justice on the part of the regulating body, met by a frank disclosure on the part of the company to be regulated. The courts ought not to bear the whole burden of saving property from confiscation, though they will not be found wanting, when the proof is clear. The legislature, and subordinate bodies, to whom the legislative power has been delegated, ought to do their part. Our social system rests largely upon the sanctity of private property, and that state or community which seeks to invade it will soon discover the error in the disaster which follows. The slight gain to the consumer, which he would obtain from a reduction in the rates charged by public service corporations, is as nothing compared with his share in the ruin which would be brought about by denying to private property its just reward, thus unsetting values and destroying confidence. On the other hand, the companies to be regulated will find it to their everlasting interest to furnish freely the information upon which a just regulation can be based."

There is no necessity of adding anything to the language of the Court just quoted. It is plain and clear, and expresses very plainly
and clearly the duties of the parties affected. In the present
160 case, sometime prior to the enactment of the ordinance in
question, an extensive correspondence was had between Hon. John S. MacVicar of the council, who had the matter in charge, and Jansen Haines, general manager at that time of the Complainant's plant at Des Moines, now its president, in relation to the value of the property, and the reduction of rates by the council. The council claims that it was entirely justified by statement of the facts in the letters of Mr. Haines, and other facts known to it, in passing this ordinance, while the Complainant claims that it was

treated unfairly and given no opportunity to show the value of its property and other facts necessary to a proper regulation of the rates which it was entitled to charge for gas. This correspondence may be found in Complainant's opening statement, page 4 to 16, inclusive, of the record, and are Complainant's Exhibit 7 to 14, inclusive. Much evidence was introduced on this subject by both parties. The mayor, as well as Mr. MacVicar, were examined on the subject and pretty extensively cross-examined on this subject. Much evidence I regard as immaterial. In my judgment, the failure to have such a hearing and investigation as hereinbefore indicated, robs the action of the council of the strong presumption, the result thereof would have induced in favor of the validity of the ordinance, and nothing contained in the letters of Jansen Haines in any way operates as an estoppel, to prevent the Complainant from establishing the real facts affecting the validity of the ordinance. On the other hand, the failure on the part of the council to have such a hearing does not change the rule as stated by Justice Sanborn in the case of Shepard vs. Northern Pacific Railway Company, in the following language:

"When a rate is made under legislative authority, the legal presumption is that it is fair and reasonable, and proof to the contrary must be clear, especially in cases in which the rates challenged
161 have never been in operation and the injunctions are sought while effect is yet speculative."

Shepard vs. Northern Pacific Railway Co., 184 Federal Report, page 807.

In the case of Wilcox vs. Consolidated Gas Company, 122 U. S., 19; 29 Supreme Court, 193, the Court says:

"The rates must be plainly reasonable to the extent that their enforcement would be equivalent to the taking of property for public use without such compensation as under circumstances is just both to the owner and the public. There must be a fair return upon the reasonable value of the property at the time it is being used for the public." San Diego Land and Town Co., vs. National City, 174 U. S., 739, 757. San Diego Land Co. vs. Jasper, 189 U. S., 439. Many of the cases are cited in Knoxville vs. Knoxville Water Co., just decided. (212 U. S., 1.)

"The case must be a clear one before the Court ought to be asked to interfere with state legislation on the subject of rates, especially before there has been any actual experience of the practical result of such rates."

These cases enunciate the rule very clearly and in very much the same language as Justice Sanborn in Shepard vs. Northern Pacific Railway, supra. It is perhaps true that in determining the value of the Complainant's property that a preponderance of the evidence under the circumstances would be sufficient but, it has not been necessary for me to adopt such a rule under the evidence in this case, because findings of value are not only sustained by a preponderance of the evidence, but also by such evidence, as clearly satisfies me of their correctness. It is true that the evidence is quite conflicting, but the conflict therein has been eliminated as far as

possible and when this is done, in my judgment, the conclusions reached are fully sustained by the evidence, which meet the requirements of the rule as enunciated by the Supreme Court
162 of the United States, as hereinbefore shown and at the same time are the same as would have been reached in case the rule only required a preponderance of the evidence to sustain them. In determining the value of the Complainant's plant, it has not been necessary to distinguish between preponderance of the evidence, and clear and satisfactory evidence. Under either rule, the result in my judgment should be the same.

163 *The Value of the Plant.*

V.

In the case of the Des Moines Water Company vs. The City of Des Moines, in this court, the opinion therein filed states the basis that must govern, in determining whether or not the rates fixed by the ordinance are reasonable, in the following language:

"In arriving at a conclusion as to what rates are lawful, we are to have ascertained the value of the plant. The question is, not what it cost, although such evidence is admissable as having a bearing. The question is not what some day the plant may be worth, although evidence with reference thereto may be considered as having a bearing. The question is:

"What is the value of the plant today? There must be a reasonable rate of interest or dividends allowed on the value of the plant. This rule is well settled by the Supreme Court of the United States in the case of Wilcox vs. Consolidated Gas Company, 212 U. S., 41, in the following language: 'There must be a fair return upon the reasonable value of the property at the time it is being used for the public.' Also in the case of Knoxville vs. Knoxville Water Co., 212 U. S., 1, in the following language:

"The first fact essential to the conclusion of the Court below is the valuation of the property devoted to the public uses, upon which the company is entitled to earn a return."—Page 9.

The original cost of the plant is not controlling. Original cost and present value are not necessarily the same, although in determining the present value—that is, the value when the new rates were established—the cost may have an important bearing, but such cost in no sense of the word is controlling. That is particularly true when the plant, as in the present case, has been the growth of years.

164 Under the circumstances it may have greatly depreciated, or increased in value, and hence the present value has authoritatively been held to be the test in determining whether or not the rates fixed by the ordinance are confiscatory. Neither the cost nor the investment are the test thereof. What is fair and reasonable value of the property when used for the public?

165 *The Real Estate.*

VI.

Of course, in a legal sense, the buildings, their contents and the yard structures are real estate, but, what is meant by the term "real estate" is simply the naked ground, minus all improvements situated therein or thereon. The works are on the east side of the river and not far from the business heart of the town, and a good natural location for gas works. On low ground, which is advantageous in connection with their distribution system throughout the city. It is contigious to the river, where water can be had for many purposes connected with the works. It is what is termed "trackage" property, so that coal, coke, oil and other material can be conveniently secured from the railroads, and is in what may be termed one of the best manufacturing districts of the city. It is in four tracts, according to the inventory (Complainant's Exhibit 15, pages 12, 13, and 14), which fully describes it and to which reference is made therefor. Briefly, it is all of Block "C," all of Block "B," except Lots 1 and 2, Lots 9 and 10 "M" (132 ft. square); Lots 3 and 4 in Block "K;" Lots 3, 4, 5, 6, and 7 in Block "T," adjacent to the river 200 ft. by 75 ft. 9 in. The evidence in relation to the value of the ground minus all of the improvements therein or thereon, unless it be that the lot has been raised to some extent artificially, shows that it has never been overflowed.

The Complainant's witness, H. M. Porter, puts the total value at $235,000 (Record, pages 383 and 5, Vol. 1); Mack Olsen, $232,400 (pages 288 to 312); R. R. McCutchen, $225,000 (pages 398
166 to 412); B. F. Kauffman, $223,670 (pages 234 to 7; R. P. Bolton, $221,160 (pages 332 to 347); and Defendant's witnesses, F. A. Mathis, $101,020 (Vol. 2, pages 2260 to 2263); B. S. Walker, $97,500 (Vol. 2, pages 2140 to 2141); A. O. Hauge, $97,000 (Vol. 2, pages 2192 to 2114); W. H. Arnold, $96,200 (Vol. 2, pages 2187 and 2189); A. S. Wilcoxen, $85,000 (Vol. 2, pages 2212 and 2213); E. C. Pease, $92,900 (Vol. 3, pages 3477 and 9). The references are to the pages where the total values are found, but attention is invited to the entire evidence of these witnesses. These witnesses, both for the Complainant and Defendant, appear to be excellent men, and qualified from their occupation and business to testify concerning the market values of this property, but they differ very widely in relation thereto and it is simply impossible to reconcile their evidence. The witnesses for Complainant appeared to be quite radical in their views as to the value of real estate and the future of Des Moines, while the Defendants' witnesses were quite conservative. In my judgment the former are all too high and the latter too low. As a rule, under such circumstances, it has been my experience that the true value lies betwe-n them and have reached the conclusion that $150,000 is about right. In my judgment, should the Complainant sell their property, and undertake to change their location, they could not get as good a place for less than

$150,000 and it is very doubtful if they could get it for that. It is useless to multiply words on this subject, especially in view of the fact that all these men appeared to be honest and candid in their evidence with reference to the property. It is, however, nothing new to find a very wide difference in opinion of witnesses in relation to the value of real estate, which often renders it difficult to reach correct conclusions.

167 *Reproduction.*

VII.

In my judgment, the only practical way to determine the reasonable value of the buildings, their contents, the yard structures and the mains, house and street lamp services and meters, is by the process of estimating the cost of reproducing them new, and then estimating the depreciation which should be deducted, in order to obtain their present value. It would be mere guess work to undertake to do so, by introduction of witnesses, and obtain their judgment as to their value. The evidence relating to the value of the real estate certainly illustrates the futility of any other course. It would be mere guess work. The difficulty is great enough even in undertaking to ascertain the present reasonable value of the property, by the process of reproduction, when, the conflict in the evidence of the different engineers is considered in this case, but it is possible through this process to reach a conclusion that is satisfactory, at least, by properly considering their evidence, and guarding against either over or under valuation.

This mode of determining the reasonable value of the property affected by the rate regulation enacted by legislative authorities is approved in the following cases:

Knoxville vs. Knoxville Water Co., 212 U. S.

168 *The Inventory.*

VIII.

The Complainant causes an inventory in detail to be made of the buildings, their contents, the yard structures, mains, house and stret lamp services, drips, valves, meters, guages, tools used at the works, in the distribution system, meters in stock—in fact of everything belonging to the gas works, including the furniture, not only of the general office, but also at the works, as well as of the books of the company. This inventory is Complainant's Exhibit 15, which shows in detail all the property of the Complainant.

Complainant's Exhibit 16 contains drawings of much of the machinery and buildings, giving the sizes and dimensions thereof. The correctness of the inventory of the mains is shown by the evidence of E. P. Walter, who was requested on cross-examination to prepare a schedule of the mains laid since the year 1889, from the books, and did so; and this schedule so prepared, was verified by

witness (Vol. 2, pages 2063 to 2069, inclusive), and offered in evidence in this case. This exhibit shows the age of the mains and the mains laid each year since 1889 to 1910 and is Complainant's Exhibit 37.

This witness prepared Complainant's Exhibits Nos. 17 and 18 (Vol. 1, page 509). These Exhibits are maps of Des Moines of the eastern and western parts thereof and show the streets in which the mains are laid and the size thereof.

Henry Moul has been in the employ of the Capital City Gas Light Company and Des Moines Gas Company, after the former company passed out of existence, and is still in its employ, since the fall
169 of 1886 as a common laborer for about three years at the first, and since then as foreman of the extension of mains and new service work, continuously (Vol. 1, page 543), and after these maps were made, went over them with Mr. Walter for the purpose of verifying them, and testifies to their correctness. (Vol. 1, pages 559 to 562, inclusive.)

This witness shows remarkable familiarity with the main system of the Complainant, but it is not a matter of wonder, when we consider that it has been his sole business since 1889. There has been maintained a card record of their installation showing the place where laid, cost of labor, and other matters connected therewith, and it was from these cards that Walter made the schedule No. 37 aforesaid. Of course the mains are not visible, and their location and size could not be determined by actual examination, but when the evidence of Walter and Moul is examined and considered, the evidence is quite satisfactory as to the location, character, size and length of the mains, as well as the material out of which made, and the soil in which they were laid. (Walter's evidence is found on pages 486 and 542 and again Professor Marks in his testimony, which will be noted here from 705 to 723, and Henry Moul from 543 to 704.)

W. F. Broadnax, a gas engineer, made the inventory of the manufacturing plant and office contents (Vol. 1, pages 430 and 431) and his work is included in Complainant's Exhibits 15 and 16, beginning November 4th, 1910 (435 to 485).

When the evidence of this witness is examined, it will be found that the inventory from pages 1 to 208, inclusive, of Complainant's Exhibit 15, is shown to be reasonably correct as to amounts, character, material and measurement, including the machinery and apparatus in the buildings, as well as the yard structures and other matters contained therein. The number of brick, however, are disputed by—

170 after. (See also concession of counsel for the Defendants on pages 736 to 738.)

During the progress of establishing the correctness of this inventory there arose a question with reference to the production of the books and papers of the Complainant which will be found on pages 537 to 542. It afterwards resulted in an agreement that the books themselves and other records need not be produced in court, and

were not, except such as were actually required to be produced by request of the Defendants, virtually waiving their production, and conceding that the evidence of the experts for the Complainant, as well as for the Defendant, with reference to their contents, should be considered the same as though the books were actually produced and verified, and hence none of the books and records were produced, verified and offered in evidence, except such as Defendants might desire on cross-examination (Vol. 1, pages 709 and 10) and I have considered the evidence of the experts the same as though the books had been produced, verified and offered in evidence.

Some of them were offered in evidence by Defendants, and the Defendants have very full and complete expert report therefrom by James Hall, assisted by Mr. Sangster, acting for the firm of Marwick, Mitchel & Co., which is Defendants' Exhibit No. 30, and the Complainant has also, by W. J. Hagenah, a very competent expert, a report which is Complainant's Exhibit No. 23. The Court's attention to this matter is called here, because, in my judgment, the evidence of expert accountants is only competent in relation to books of account which involve numerous items, when the books themselves are introduced in evidence, because they are the basis of the evidence of the accountants and the primary evidence of what they contain and show, and experts are then competent to aid the court in reaching conclusions therefrom and the parties against
171 whom they are introduced have the right to test the correctness of the conclusion of the expert by the books themselves, and unless their production and verification is waived, the evidence of the expert for the Complainant is not competent.

However, this would only apply to the Complainant's expert, and not to the Defendants'. Their production and verification having been waived, the evidence in relation thereto is considered with the same force and effect as though they had been produced and verified.

But, to return to the inventory Exhibit 15 and its illustrations; Exhibit 16 and maps of the mains; Exhibits 17 and 18, which are self-explanatory. Their correctness are, in my judgment, fully established by the evidence and are shown to be a proper basis for the valuations placed upon the property therein mentioned by the engineers of the Complainant as shown in Complainant's Exhibits 20, 21 and 22 and Defendants' Exhibit No. 23.

172 *Valuation.*

IX.

The next question which presents itself for consideration is the valuation of the property by the process of reproduction. It is evident that in so doing, that it becomes necessary to obtain:

1st. The unit cost of reproducing the buildings, machinery and apparatus, as well as the mains, meters, house and lamp services and other matters connected with the distribution system and then, determining the proper overhead charges and the proper depreciation thereon in order to obtain the value of this property.

2d. To ascertain the value of the tools and personal property, necessarily used in connection with the plants and which is part of the property used by the Complainant in its business of manufacturing and distributing gas to its consumers.

3d. To ascertain and determine what is a fair and just allowance for working capital.

In obtaining the value of its plant, the Complainant employed three experienced consulting gas engineers, two of Chicago, Henry I. Lea and William Baehr, and one of New York City [William W. Randolph, and the Defendants one of New York City], Prof. William A. Marks. These engineers are each and all competent witnesses, and of large experience in their profession, and qualified to testify in relation to the value of the property of the Complainant. The inventory, Complainant's Exhibit 15, with the drawings and photographs and illustrations in Exhibit 16, were furnished each of them, and each and all of them visited the City of Des Moines, personally inspected the gas plant, and so far as
173 necessary so to do, also inspected the main system, as well as the soil in which the same were laid, and qualified themselves to testify in relation thereto and the value thereof. Their reports are evidence as follows:

Lea, Complainant's Exhibit 20; Baehr, Exhibit 21; Randolph, Exhibit 22, and Marks, Defendant's Exhibit 23.

These Exhibits were each and all duly verified by testimony of the witness making them, as will be seen by the record of the evidence (Lea, Vol. 1, pages 743 to 1295) and recalled as shown by the index, Baehr (Vol. 2, pages 1296 to 1592), Randolph (Vol. 2, pages 1592 to 1660), Prof. W. E. Marks (pages 2288 to 2795). They were each and all extensively examined in chief as well as cross-examined, and their evidence very fully and clearly rendered, their several reports as before stated, competent evidence, in connection with their evidence, and they were each and all duly offered in evidence by the parties calling them as witnesses. These four gentlemen are all experts in matters concerning which they have testified in this case and show themselves conversant therewith, and experienced engineers. The first three were employed by the Complainant to do this work and estimate the value of the property, and were well paid therefor and the same is doubtless true of the Defendants' Expert, Prof. Marks, although I do not recall any evidence to that effect, but it is his business and profession and it is not at all likely that he was working for nothing.

The report of Henry I. Lea, as will be seen by its examination, is much more in detail, than the other two of Complainant's witnesses. Baehr's next, but Randolph less so. These reports all show base figures of their valuation, except Randolph, as well as the overhead charges, and the estimated life of the several structures and mains, per cent condition, and the depreciation deducted to obtain the present value thereof. However, the Base figures
174 in Randolph's report is readily obtained by dividing his total valuations by 120 per cent, as he testified that he added as overhead charges, 20 per cent (Vol. 2, pages 1639 to 1640, inclusive).

As the 20 per cent for overhead charges in Randolph's report was added to the "Base Value or Net Reproduction Cost New," and in order to obtain the "Net reproduction cost new" of all his valuations, it is necessary to divide them by 120 per cent. Deducting 20 per cent from them would not produce the correct result. The Randolph report except the distribution system, shows a depreciation by items, rather than percentage, but he has depreciated the distribution system 10 per cent on the whole amount, without any detailed estimate thereof, according to the life of the property as depreciation is usually estimated. In the reports of all of these witnesses, the items cannot be compared, in anything like minute detail, as to their several valuations, except the totals of the buildings, of the contents thereof, of the yard structures, mains, meters, house and lamp services, and in the comparison of values, it is not undertaken, but, the totals of the "Net reproduction cost new" are compared in Exhibits to this report as follows:

"J," Miscellaneous; "D," Buildings; "F," Contents of Buildings and Yard Structures; "K," Distribution System. It has been very difficult for me at all times to be certain in relation to some of the items of the Randolph report, because he has failed to follow systematically the inventory and designate the values of the several articles and in one or two instances, I have been compelled in a measure to resort to an estimate, because of his valuation of a number of articles as a whole.

In their total units of valuation in the "Net reproduction cost new" it will be seen in comparing the above exhibits, that there is considerable difference in their unit valuation, and to average them, would give a result to which none of them agree.

175 There is always a tendency more or less manifest in different individuals and it was manifest on both sides in this case, to favor the party who has employed them. In so stating, no reflection is intended thereby on any witness, but simply to state a general rule, which experience teaches us, that it is necessary to observe in weighing evidence, which involves matters of opinion as contra-distinguished from matters of fact. This tendency should be guarded against, not only to prevent over-valuation, but also under-valuation, and so far as possible to eliminate it, not only in getting the "Net reproduction cost new," but also, in the overhead charges, as well as in the depreciation. What Henry I. Lea terms "Net reproduction cost new" is termed "Base" by Baehr, and in reaching the value of the property must first be obtained. "The Base Value" of any of the buildings, machinery, apparatus, or other property, is what it would cost to produce it at the present time new, without adding thereto, any overhead charges. Intelligently to examine any of these reports, and properly consider the evidence thereto, it has been my conviction, that this is the first thing to do.

As before stated, an average valuation gives a result to which none of them agree, and which in my judgment, would not result in obtaining a "Base" upon which to build, that would be sustained by evidence in the case. However, it will be observed by the Exhibits to this report as before stated, that the Complainant's three engi-

neers, in fact only agree on the lowest valuation on each item as shown in the comparative valuations as stated in the Exhibits to this report—"J," "F," and "K."

It is true that they do not all agree that it is not worth more than the lowest valuation made by any of them. But the greater includes the less, and when they value it more, then they do
176 agree that it is at least worth the lowest valuation made by any one of them, and we then have a "Base" value sustained by all three of them and sustained by the clear weight of the evidence in the case. Exhibits "C—*a*," "G," "H," "I," and "K" to this report, show the figures selected and the letters "B," "L," "R," show whose valuations they are, followed by the number and page of the exhibit from whence they are taken, and are intended to be self-explanatory and the totals are as follows:

Buildings—Exhibit "C—*a*"	$66,528
Contents of buildings—Exhibit "G"	137,892
Yard structures—Exhibit "H"	206,728
Miscellaneous—Exhibit "I"	57,912
Distribution system—Exhibit "L"	1,505,966
Total "Base Figures"	$1,975,026

177 *Overhead Charges.*

X.

In reaching the physical value of the plant in question by the process of reproduction, it is necessary to bear in mind that the present value thereof, represents much more than the machinery therein, the labor of installing and constructing them, and putting them in place to perform their various functions, ready for the manufacture and distribution of gas to its customers. Were the City of Des Moines without such a plant, and such a one as the Complainant now owns was proposed, it would be found that much more than the mere cost of labor and material would be expended. Such expenditures are termed overhead charges, and are as follows:

1. Time and money expended in the promotion of the enterprise, in the organization of the company and interesting capital therein, including, also, legal expenses, obtaining the necessary franchise, as well as the costs of incorporating the company.

2. Then a competent engineer must be employed to prepare the plans and specifications for the plant, and make the necessary surveys, and when the work began, to superintend the construction thereof, and see that it is done properly and according to plans and specifications. The successful operation of the plant depends largely upon its proper construction.

3. Then losses arising from accidents and injuries to workmen as well as the material during its construction, which is such an amount as the cost of insuring against such losses, which is between 1 and 2 per cent.

178 4. Contingencies are such expenditures as arise from the lack of foresight and care in preparing the plans and specifications. No matter how careful the engineer may prepare them, such expenditures invariably arise. Mr. Alvord testified that his allowance therefor would depend very much upon his knowledge of the engineer who prepared them, but that no matter who prepared them, they would invariably occur, and an allowance should be made therefor. The careful and thorough inventory in this case, reduces very greatly the allowance therefor.

5. The costs of administration, which include the time and money expended by the parties who are engaged in the enterprise, purchasing the material, procuring the money for their payment as needed, and generally superintending the entire enterprise during the construction of the plant.

6. It is estimated that it would take three years to complete the plant in question, and that at least one-half the *the* time the money invested therein would give no return, and that a loss of interest would result therefrom and that such loss should be included in the overhead charges.

7. Taxes during the construction.

The latter is regarded by me as very questionable. It is in a certain sense making taxes an asset rather than a liability, and the amount is so vague and uncertain that it has been given very little consideration and weight in fixing the overhead charges. Either the money or the property should pay taxes.

It must be borne in mind that these expenditures are all made during the promotion and construction of the plant, and are necessarily a part of the cost thereof. No overhead charges that do not inhere in and add to the cost thereof, should be allowed as a part of its physical value. It is not a question of what was actually expended therefor in the plant in question, but what would it
179 cost to reproduce a similar plant at the present time. It is through this method we reach the present value of this plant new, and then when it is properly depreciated, according to the condition, life and age of its various parts, we reach the present value of the plant in its present condition. It is not a perfect method, but it is the best method therefor, and results as nearly as possible in giving the present value of the plant. No other method known has proved so satisfactory. These overhead charges are treated by the various engineers under the subtitles of—promotion, organization, engineering, casualties, contingencies, administration, loss of interest and taxes, and briefly are as follows:

1. Henry I. Lea, (Page 1, Complainant's Exhibit No. 20) gives the total organization, which includes promotion, at $68,023. This also includes the salary of manager and expenses, which is part of the costs of administration. Then on page 4, same exhibit, he estimates 5 per cent for engineering and supervision, casualty liability 2 per cent, and omissions and contingencies at 8 per cent, in all, 15 per cent.

The letter of date June 24, 1911, gives the following total repro-

duction costs, on which the overhead charges are calculated, as follows:

Buildings	$106,934
Work equipment	510,179
Distribution system	1,963,027
Total	$2,580,140
On page 13 of the same exhibit we find that the net construction costs are	$2,056,022
Overhead charges	$524,118

These are in addition to the $68,023, but include the 15 per cent, as well as taxes and interest.

2. William A. Baehr, on page 5 of his report (Complainant's Exhibit 21) gives the overheard charges No. 1 on plants,
180 services and meters at 10 per cent on base value only, under the head of "Contingencies," and for engineering, 5 per cent on base, without contingencies added are same as above, and 1.5 per cent on real estate, on legal organization, liability, and fire insurance on "Base" only, including the foregoing, and meters in stock. Figures interest on full valuation at 6 per cent and taxes on same basis at 2¼ per cent. The interest is calculated only for half the time. These items, Nos. 1, 2 and 3, are referred to in his calculations.

The total items of additional cost are given by him on pages 18, 19 and 20 at $615,603 under that head.

3. W. W. Randolph added 20 per cent to the base cost of the buildings, machinery and distribution system, making them total:

Total	$2,520,514
Discounted 20 per cent	2,100,428
Overhead charges	$420,086

4. Prof. W. D. Marks allows 12½ per cent overhead charges on buildings and works equipment, but nothing on distribution system except services. This will appear throughout his report, when it shows the overhead charges allowed. He claims, however, on the mains this calculation of prices includes contractor's profit at 15 per cent, and regards it the same as an allowance to that extent. (Page — Record.) It is evidently not an overhead charge in any sense of the word.

5. The most satisfactory witness on this subject was John Alvord, although he differs very little in his percentage from that of W. W. Randolph. He is an engineer of large experience, and unquestioned ability. So far as contingencies are concerned, he would vary his estimate upon his knowledge of the engineer who prepared
181 the plans and specifications. (Record, Vol. 4, page 4860) and puts these charges at from 20 to 30 per cent, and regards 20 per cent as very conservative.

It is my recollection that his lowest percentage was 17 per cent, but I am unable to find it in the record, except it be in adding the various amounts together. He makes a very clear exposition of the reason for estimating overhead charges, beginning at the above page and continuing both in direct and cross-examination. (Record, pages 5000 to 5002, Vol. 4.) These show the various items comparing them, minimum and maximum, promotion and organization, up to the time actual work began, 2½ to 5 per cent; engineering, 5 per cent minimum and 7½ per cent maximum; taxes, insurance and casualties, 2 to 2½ per cent; administration, 2½ per cent; interest, 6 per cent on amount of money invested before it is started. This makes the minimum 17½ per cent without including interest. The allowance of interest before the plant is started is approved in Shepard vs. Northern Pacific Railway, 184 Federal Report, page —.

There is in this case a very complete inventory of the entire property, with no suggestion of any omissions in any part thereof, and hence, in my judgment, but very little should be added by way of overhead charges on this account. The organization expenses are shown to have been the sum of $6,922, and after careful consideration of the case, it is my conclusion that 15 per cent in addition to the cost of organization is a fair and just allowance therefor. There is undoubtedly no absolute rule for the amount that should be allowed and care should be taken that they should not be made excessive. They should be reckoned on an economical basis, rather than extravagant one. It is claimed that the evidence of Alvord on this subject is not rebutting and it is questionable, but it simply clarifies the evidence, and should be admitted. It does not change the result.

182 *Depreciation.*

XI.

The "Base Value" with the "Overhead Charges" added, give us the present value of the physical plant new, and in order to get the present value of the physical plant, it becomes necessary to determine to what extent this amount should be depreciated. The plant in question is not new, but much of it has been in use for many years and it is therefore, not as valuable as a new plant would be. The property has been in constant use, but its most valuable extensions and improvements have been made within the fifteen years preceeding the 1st day of January, 1911, and these extensions and improvements are therefore not subject to so great an amount of depreciation as those preceding that period. The Defendants take as the basis on which they reckon the investment, and such a basis indicates a depreciation of $40,597.51, and it appears, also, that there is deduction by both parties; the cost of the water gas patents to the amount of $172,096, presumably because the patents had expired. Otherwise, no account has been taken of

depreciation, unless it be the sum of $264,108.78 taken from the account of profit and loss and charged to plant and property.

The investment, however, is not the basis of depreciation, but the "Base" value, with the "Overhead Charges" added. What Prof. Marks terms "Residual" depreciation, is the correct theory upon which depreciation should be reckoned, not only for the past, but for the future. It contemplates that the plant will be kept in good repair, and so far as the evidence is concerned, that appears to have been true in the past. But no matter how well it has been
183 kept in repair there is, however, still the natural wear and tear of machinery, apparatus, and tools from their constant use, which necessarily lessen their value from year to year. The same is true, also by reason of physical decay, from the operation of the elements upon the various structures, such as buildings, mains, services, and holders. The length of time any structure, machine, apparatus, or tool will last depends very greatly on the material of which it is composed, and the use to which it has been applied, and hence, the average life thereof must necessarily vary greatly. The depreciation made by Lea and Baehr will be found to have been very carefully estimated upon the average life of the various structures and buildings, including machinery and apparatus, in fact, every part of the physical plant, and have carefully calculated therefrom, the composite life thereof, and the average condition per cent of the physical property, excluding real estate, as determined by William A. Baehr, is 88.2 per cent (Complainant's Ex. 21, page 17), and Henry I. Lea at 85.3 per cent (Complainant's Exhibit 20, page 9).

An examination of the report of Randolph is upon a different method entirely, as will appear therefrom (Complainant's Exhibit 22). It is made largely upon his judgment from observation and examination of the condition of the buildings, machinery and apparatus, and upon the distribution system, by deducting 10 per cent from the "Base Value" with "Overhead Charges" added. Prof. Marks does not depreciate the mains, but does the services and meters, as well as the buildings, as will appear from his report. On page 88 of Defendant's Exhibit 23, will be found a table showing the annual statement of gas sold to have been, since June 30, 1887, which totals 4,447,494,868 cubic feet, and estimate that adding thereto, the amount previously sold by the plant, would give five billion cubic feet of gas. In my judgment, this is a fair
184 and correct estimate thereof. The total depreciation by the professor on the entire plant is $363,363, and divided by 5,000,000,000, would give 7.26 cents per M. C. F. depreciation. This is his depreciation for the past, but getting his depreciation for the future he deducts the appreciation for the real estate, estimated at $64,235, and gets $299,128, which makes 5.982 cents per M. C. F., and then takes 6 cents per M. C. F. per annum as his estimate of depreciation for the future. (Defendants' Exhibit 23, pages 77 and 78.) In my judgment, this is not correct for two reasons:

1. Because there is no reason to presume that the physical plant depreciated more in the past than it will in the future

2. Because the Complainant is entitled to the benefit of the increase in the value of its real estate, the same as other people.

Henry I. Lea (Complainant's Exhibit 20, page 9):

Total reproduction cost new of property	$2,839,795
Present value	2,459,786
Depreciation	$380,009

This gives us 7.6 cents per M. C. F. per annum for Lea.

William A. Baehr (Complainant's Exhibit 21, page 17) gives the—

Total reproduction cost new at	$3,531,491
Present value	3,221,166
Depreciation	$310,325

Which on same basis gives 6.2 cents per M. C. F. as the rate of depreciation. William Randolph's total depreciation is $282,381, which gives in the same way 5.64 cents per M. C. F. as the rate of depreciation.

In estimating the life of the buildings and depreciation, both Lea and Baehr have shown great care in their estimates, and
185 the latter makes the rate 88.2 per cent on the entire physical plant, excluding real estate, while Lea makes it 85.3 per cent. In my estimate thereof, the rate found by Lea has been adopted. This report shows the—

Total cost new, with the overhead charges is	$2,271,280
Present value 85.3 per cent	1,937,402
Depreciation	$333,878

In the same way as the other we get a rate of 6.67 cents per M. C. F. It is a little curious that this corresponds with the average of the four engineers, as can be readily seen by adding them together and dividing by four.

The rate of depreciation in determining the present value of the property, calculated on a percentage basis, and reckoning 521,500 M. C. F., excluding Valley Junction, gives a trifle less than 1.8 per cent on the physical value, $1,937,402, and including Valley Junction, 532,000, something over 1.83 per cent on the same valuation.

Prof. Bemis figures on the sinking fund theory, and reaches a rate of 4 cents per M. C. F. for the future, but that rate applied to the past would increase the value of the plant over $130,000.

It must be borne in mind that depreciation cuts both ways, and

it would hardly be consistent to use a different rate for the future than in the past, and believing that the rate so obtained is fair and just to both parties, it will be used in the future.

It is proper to say here that this depreciation includes such apparatus as became obsolete and must be discarded for improved machinery.

The results above stated in relation to depreciation are reached in the manner above stated, and after examining the many phases of the subject by those whom I have regarded competent to
186 speak on the subject, and I was a little surprised that the result is the average of rate as given by the four engineers on the totals of their depreciation.

William A. Baehr, total depreciation	$310,325
W. W. Randolph, total depreciation	282,381
Henry I. Lea, total depreciation	380,009
Prof. Marks, total depreciation	363,363
Total	$1,336,078
Divided by 4	$334,019
Depreciation actually made	$333,878

By comparing these amounts it will be seen there is less than $150 difference in the total amount of depreciation, and the average depreciation of the four engineers, who are really the most competent to speak upon the subject, and hence my conclusion is that it is about as near correct as can be reached by the evidence in the case.

187 *Working Capital.*

XII.

The new ordinance deprives the Complainant of the right to add ten cents per M. C. F. to the price of gas, unless paid on or before the 15th day of the month following that in which the gas was consumed, and the evidence shows that the average working capital for the past five years was $120,000, and that when the ordinance went into effect, that they were then using $142,000 as working capital.

Without the means of enforcing prompt payment, and without any inducement so to do, on the part of their customers, in my judgment, the working capital should not be diminished and the amount allowed is $140,000

To this add real estate	150,000
To organization expenses	6,923
To meters in stock	6,603
Present value of physical property aside from above items.	1,937,402
Total physical value	$2,240,928

188 *Paving Over Mains.*

XIII.

The above valuation includes the cost of mains laid in the streets, when they were not paved at the time, and include the cost of taking up an replacing the pavements.

In estimating this amount, cost of lifting and restoring pavements over mains are used as a basis thereof. Henry Moul (Page 676, Vol. 1 Record) testified that about 25 per cent of the mains were laid under pavements, and of course, the balance were laid when no pavements existed. The total length of the mains as shown by the inventory is 970,923 ft. The total length of mains under pavement January 1, 1910, is 448,191 feet, which is about 46 per cent of the entire length of the mains. Twenty-five per cent of this total percentage, is the amount, according to evidence of Henry Moul, represents the mains laid under pavement. Twenty-one per cent of the amount of mains where no pavement existed when the mains were laid. This, under evidence, cannot be exact, but simply an approximate estimate. In estimating the cost of the pavements, as that given by Baehr was adopted, which is $305,870, to which add 15 per cent overhead charges, and we have $351,750, and depreciated by the percentage 85.3 heretofore used, makes $300,043, which divided according to the percentage, gives us $136,562, but as this is an estimate which I am inclined to believe, rather under, than over estimates the mains laid where pavements existed at the time, the amount is fixed at $140,000 in round numbers, which, in my judgment, is just to both parties.

If we adhere strictly to the process of reproduction to ascertain the value of the plant, then the above amount should be
189 counted, and under a like concession in this case, as in the Water Works Case, would very likely be justified. But the ultimate question in this case is the reasonable value of the property, and reproduction is simply the means adopted to determine it. When mains are laid in streets already paved, the work of taking up and replacing the pavement in so doing, is the work of the Complainant, and should be considered precisely in the same light as taking up and replacing the dirt when no pavement existed. It was done at the Complainant's expense. But where pavements are laid after the mains are installed, they have expended no money in taking up and replacing pavements. An allowance therefore, makes reproduction, the ultimate question, and not the reasonable value of the mains, unless it further appear that the value of the mains are enhanced thereby to the extent of the cost of taking up and replacing pavements, which is not shown in this case. When the whole evidence is considered, the contrary is shown.

The Complainant's engineers make no difference in estimating the life of mains covered by pavements, and those not so covered. The question was not asked them. Prof. Marks is the only one who testified that such is the case, and he testifies that it renders them practically immortal. Of course, if the value of the mains under

pavements is shown to have increased to the extent of the cost of taking up and replacing pavements, then it would be the Complainant's good fortune and he would be entitled to the benefit of it, just as he is entitled to the increase in value of any other property used in its plant. But if it does not, then in this respect, the process of reproduction instead of attaining its purpose, defeats it and my conclusion is that this amount of $140,000 should be deducted from the total amount hereinbefore given.

The authorities on this question are conflicting and the question is not definitely settled. They are fully set forth in the
190 respective briefs of the Complainant and Defendant, and it is not necessary for me to review them. It is, however, true that when the value is to be determined solely from what it would cost on the 1st day of January, 1911, to lay the mains, where pavements already exist, then the value so determined would include this $140,000. But the life of the mains is not enhanced thereby, and no value added to them by reason thereof, then wherein is the justice of giving the Complainant the benefit of this amount, when no enhancement in the actual value resulted therefrom, and not a dollar thereof, used in laying these mains and no right of property acquired in the pavements. There is neither justice nor equity in it, but punishes the people who have spent their money to pave the streets, simply because some other company who desired to put in a gas plant, would have to be at the expense of taking up and replacing the pavement in building their plant. Such added value is wholly theoretical, when no benefit is derived therefrom; but rather the reverse thereto by reason of the increased cost of repairing them. To hold otherwise would be permitting them to reap where they have not sown.

191 *Going Value.*

XIV.

This question as a matter of law is fully determined by the decision in the case of Des Moines Water Co. vs. The City of Des Moines, rendered in this court, September 16, 1911, and hence, the only question considered by me is the amount that should be allowed therefor. A good deal in connection therewith has been said about the effect that should be given, the power of the City Council at any time to fix the rates which the Complainant is entitled to charge and collect for gas from their customers. As this power is qualified to the extent that the rates which they are entitled to establish by ordinance shall be such as will afford a reasonable compensation for the use of their plant; it is fair to presume that they will do their duty and fix such rates as are reasonable and just. In determining the "Going Value" it is assumed that the rates which the Council will prescribe by ordinance will be in accord with the limitation upon their power. Any other view of it would deprive the Complainant of its just rights, and depreciate the value of the property by reason of a wrong which the Council had no

legal right to commit. It strikes me that this is self-evident. That there is such a thing as a "Going Value," in a public utility, is also self-evident, but how shall it be measured, is the difficult question.

Randolph simply allows a lump sum of $500,000 as the cost of developing gas sales from zero to over 510,000,000 cubic feet per year. (Complainant's Exhibit [22], page 1.) It is simply his judgment as a consulting gas engineer of the additional value
192 that should be given Complainant's plant as a going concern. Baehr and Lea, however, have figured it out by a series of calculations to determine the present value of the difference in the earnings in this plant with its established business in full operation, and a new plant in a city exactly similar to Des Moines with no gas plant, which it would take three years to complete, and seven years to bring the business up to the capacity of the Complainant's plant, at that time.

The Court's attention is called to this subject and its treatment in Exhibits 20 and 21 of the Complainant's evidence as well as their evidence in relation thereto as shown by the record. The result which Lea obtains by his calculations is $583,000 (Exhibit 20, page 120), and Baehr $509,795 (Exhibit 21, page 17), as the going value of the plant.

The value of this estimate depends very greatly upon the correctness of the estimate of the business of the present plant in the future, and of the growth and development of the hypothetical plant. I have not undertaken to verify the correctness of their respective estimates, and really doubt my ability to do so. But it is looking a good ways into the future, and should not be accepted as scientifically correct, but as a mere estimate, and in my judgment, would be discounted considerably by a purchaser of the plant, before investing his money. Prof. Marks puts the "Going Value" at $352,000 (Defendants' Exhibit 23, page 98), figuring at 90 cent gas. But I am not inclined to accept without discounting, any of these estimates, but fix the "Going Value" at $300,000. It may be asked on what basis this amount is determined. The evidence followed strictly might require me to make it higher, could my mind rest satisfied that the "Going Value" of this concern is worth more, but I cannot feel satisfied that such is the case, and regard $300,000 as every dollar it is worth over and above its physical value, and in my judgment, it is worth that much more than a plant
193 would be that had to develop its business. But that would be much more rapid, in my judgment, than is estimated. I think a purchaser would be willing to add this amount for its developed business, and that a seller would not be willing to sell unless he got that much more than its phyiscal value, but I could not give the mental process by which this conclusion is reached any more than a jury could do so, under like circumstances, but it is nevertheless my judgment under all the evidence in the case.

The element of "Good Will" as applied to the ordinary merchant or manufacturer dealing with the public generally is not considered in estimating the "Going Value" of Complainant's plant. It cannot be considered in a public utility like the one in question in this case,

because the Complainant has a monopoly of the business in which it is engaged in the City of Des Moines, and those who desire to use its product must buy of it. They have no choice in the matter. But there is a great difference even in a monopoly which has a business already developed and one that must develop it. The plant of Complainant has all its parts working in harmony, performing their several functions in producing and conveying the gas to its customers. These several parts are not only in place, but have been brought to a harmonious operation throughout. Even the employés of the concern are familiar with their duties and experienced in performing them. But without business no matter how perfect it may be, it would be unprofitable. It is ready, however, for business, and has the business to transact. It was a small concern at the start in 1864, but its books show that it has had a steady growth for many years in the past, and every thing indicates that it will continue in the future. There is great difference between such a plant and one whose business must be developed. All a purchaser of such
a plant would have to do would be to take charge of the
194 plant, "Touch the button," and he is making money from
the start. There is no element of uncertainty connected with it.

He can retain its experienced employés as a rule, should he so desire, at the same wages. There is no question that such a plant has a "Going Value," because it is a money maker from the start.

The only difficulty is to determine how much its "going value" is worth. No interest during its construction is allowed, nor anything that is included in the "Overhead Charges," which are part of the physical value. But simply the fact that it has a developed business that will make money for its owner, with reasonable rates allowed for the product which it manufactures and sells.

195 *Investment.*

XV.

The original cost of the plant, in my judgment, should be regarded as the investment, no matter by whom incurred. It has been very difficult for me to determine from the evidence, with any degree of certainty, what has been the original cost thereof.

1. It is evident that the basis from which reckoned, is to some degree, at least, a matter of uncertainty. With what accuracy, the books of the original projectors of the concern, may have been kept, does not appear from the books. Were it a controlling question in the case, on the value of the property, I should investigate the books themselves, but as it is not, I am content to accept the reports of the experts, who have examined them. Excluding the working capital, W. J. Hagenah (Complainant's Exhibit 23, page 5) has a table showing $1,928,016.65, but this includes $120,000 in bonds, given to satisfy the account of The U. G. I. Co. against the C. C. G. L. Co., at the time of the re-organization, March 1, 1906, of $105,526.46, which

deducted, leaves $1,808,016.65, including Valley Junction; excluding Valley Junction, we have $1,763,016.65.

2. This must be very nearly correct, as in the argument, R. O. Brennan used a table, evidently prepared by Prof. Bemis, which under the head of "Additional Investments," gives the amount of $1,807,981.77. (See Record of Argument, pages 5388 to 5400, [5398] and original table herewith returned.) This evidently includes Valley Junction, and deducting it we have $1,762,981.77, which is less the Hagenah amount only $34.88.

196 3. Hall (Defendants' Exhibit 35) gives the total at $1,994,-314.09, but this should be diminished by $172,096, for water gas patents, leaving $1,822,218.09, and deducting Valley Junction, $45,000, leaves $1,777,218.09, which is in excess of the amount used in argument, $14,236.32, and of Hagenah, $34.88 more.

4. Hall's report (Defendant's Exhibit 30, page 20) begins with the appraisement of 1895, which differs from the Hagenah basis $40,597.51, and his total without depreciation, is $1,727,675.67, including Valley Junction, but excluding it, would give $1,682,675.67, but this shows a depreciation of at least $40,597.51, and was evidently the basis of the Ordinance and rates fixed thereby of 1895, and should be regarded at that time as new, for the purposes of depreciation.

5. Then, again, when the Des Moines Gas Company was organized and the property of the Capital City Gas Light Company taken over by it, the stock of the new company was fixed at $2,250,000 par value, but no part of the stock was paid for in cash. The U. G. I. Co. of Philadelphia, owned the stock of the C. C. G. L. Co., and hence, this new stock was issued to it, or to parties in trust for it. There was issued to The U. G. I. Co., March 1, 1906, $800,000 6 per cent stock contracts, of which out of the profits has been paid $389,000. There was issued bonds, $240,000, 5 per cent, to pay for the holder and the general account of $105,526.46, as hereinbefore stated. There was also issued $45,000, to pay for the Valley Junction property. The Capital City Gas Light Company was indebted on bonds due the following January of $400,000, for which 5 per cent bonds were issued at that time, which makes all told $1,485,000, including Valley Junction, and excluding Valley Junction, $1,440,000.

197 Since that time extensions and improvements have been made to the amount of $412,704.51, which makes the sum of $1,852,704.51, excluding Valley Junction, but including it, $1,897,-704.51. There were issued for the extensions and improvements $412,000, and the total discount on bonds was $33,950, but they were all taken by The U. G. I. Co., and so far as the company is concerned, it makes no difference.

Now, it does not appear that The U. G. I. Co. paid anything in money on the stock, but of course, the stock represents the Company's property. In fact, the company's money is evidenced both by the bonds, stock contracts, and also, by the stock, and the interest paid simply amounts to a dividend on the stock, as they own both.

There is nothing in the transaction, however, that changes the amount of the investment.

6. The investment as before shown, does not contain any overhead charges. Now, property depreciates the same, after adding overhead charges, and then add the increase in value of real estate, $110,000, and working capital, meters in stock, and organization expenses, and there is no greater difference than might be expected, in view of the times covering the investment.

198 *Prof. W. D. Marks.*

XVI.

Of course, I have not undertaken to reconcile the evidence of the witnesses on the question of the value of the Complainant's plant on the 1st day of January, A. D. 1911. It cannot be done. The valuation of none of the witnesses has been accepted, but it has been accepted, but it has been reached as hereinbefore explained, and from what appeared to me to be the clear weight of evidence, endeavoring to avoid, on the one hand, over-valuation, which it was evident to me must be done in order to reach a correct conclusion with reference to the value of the plant. The valuation of the physical property by all of the Complainant's witnesses have each and all been reduced very greatly, and the result exceeds the valuation of Prof. W. D. Marks. When his unit valuation of the works and their equipment is ascertained it amounts to $429,004
To this add mains 652,947
House services 274,720
Lamp services 18,653
Meters in use, page 61 188,981
Distribution tools, page 64 2,977
Work Tools, page 63 2,977
Rejected items, page 76 280,081

Total $1,850,340
Add building, omitted by him, at 15,000

Total unit cost $1,865,340
While the unit cost adopted is $1,975,020

An examination of the evidence will show that the professor did not include in his valuation of the mains, any overhead
199 charges, save what he calls contractor's profit, or else I am unable to understand his evidence. (See Record, Vol. 2, pages 2387, 2327 to 30, 2792; 2606 and 7; 2622.) It is not necessary to discuss the Buffalo Chart, from which he obtained the unit prices per foot. I simply invite an examination of his entire evidence.

200 *Prof. E. W. Bemis.*

XVII.

There are very few men, who through investigation, have gained more information in relation to the operation of public utilities of the character in question, than Prof. E. W. Bemis, and he is an experienced man in water works. He is undoubtedly a very valuable man to assist in a case like the one at bar. But he is not a qualified expert upon values.

There is a very great difference between information gained by investigation and from statistics, and that gained by actual experience in the business. It is evident that for some time his efforts have been directed in the work of securing lower rates for the public, who are patrons of public utilities, and his efforts in that direction are laudable, and in this work he has gained a large amount of general information, but any man in so doing will have his eyes open for everything bettering his side of the case. Much of his evidence was purely argument-ive and incompetent, unless made so by the extensive cross-examination by Complainant.

1. His estimate of the value of the property is $1,600,000, but made without investigating the plant, but rather from the evidence in the case. In my judgment, he is not a competent witness thereon and hence, not considered upon that question.

2. He has gone quite extensively into statistics and in a very intelligent and comprehensive manner, but, granting that such evidence is competent, it became evident to me that they are not reliable when accuracy becomes necessary. They may very properly
201 be consulted when we are simply seeking approximate results, but not when accuracy is required.

Similarity of conditions must exist, and similar results are required. It is very doubtful if the same results can be produced each day with the same plant at the same cost. But granting that it can be done, then we must compare the conditions of the plant from which statistics are derived, with the plant in question, before they can be regarded as reliable and accurate. The matters involved in the present case demand as great accuracy as possible, and to get it, we must look to the conditions involved in the plant in question, rather than resort to statistics, which involve conditions of which we have but little, if any, knowledge, without opportunity to investigate, beyond what little is given in the various tables submitted. Whether such evidence is competent has not been considered, but, if so, it is of little value, beyond simply obtaining proximate results and cannot be relied upon for accurate results.

202 *Wisconsin Plan.*

XVIII.

The tables on pages 42 and 43 of Complainant's Exhibit No. 23, as well as Complainant's Exhibit No. 26, by William J. Hagenah, are

based upon the so-called Wisconsin Plan. There are quite a number of exhibits, also by the defendants, which illustrate it.

It is not necessary to set out all of the Defendants' Exhibits therein, because it is evident to me that the evidence is incompetent for the purpose of establishing the value of the Complainant's plant. Among them, however, are Defendant's Exhibits Nos. 33 and 34, and there are perhaps others on both sides which it is not necessary to specify by number. Much time was used by both Complainant and Defendants in exemplifying plan. It was offered by the Complainant and resisted by Defendants. The evidence shows that this plan is used by the Wisconsin Rate Commission, when a public utility has, through no fault on its part, met with losses in delevoping its business, or otherwise, for the purpose of obtaining a basis for value on which to fix rates for the future, which will enable it gradually to recoup its losses. It is not used otherwise. The reckoning in the tables in the Complainant's Exhibits 23 and 26, are made at the rate of 8 per cent interest, but my recollection is to the effect that in Wisconsin the rate of interest of such reckoning is made at 6 per cent. (I am advised that this is not correct as to 6 per cent.)

1. The amount of the investment at the close of the first year, less net profits, if any, is ascertained, and interest reckoned thereon to the close of that year at the rate allowed.

203 2. Then the extensions and improvements determined their cost and interest at same rate, reckoned to the same time for one-half the year.

3. The total expenses of operating the plant for that year determined.

4. Depreciation on the investment at the close of the first year at whatever per cent is allowed, is then calculated.

5. The amounts are then added together, principal and interest as above, and from their total, the gross earnings are deducted, and the balance left thereafter, constitutes the investment at the close of the second year on which interest is calculated to the close of the third year, and the extensions and improvements for the third year for half the time, then the total operating expenses and depreciation determined and from the total amount so obtained, the same as the second year, the gross receipts are deducted, and the amount so obtained constitutes the investment at the beginning of the fourth year. This reckoning is continued from year to year, until the close of the year at which the Commission is about to fix the rates, and the amount obtained at the close of this year constitutes the basis upon which the rates are determined. The amount at 2¾ per cent depreciation on Complainant's plant, beginning with the year ending June 30, 1887, is $3,224,783 (Complainant's Exhibit 23, page 43) at 2½ per cent depreciation, is $3,098,848, (Page 42, Complainant's Exhibit 26) at 2 per cent depreciation, $2,915,781, (Complainant's Exhibit 25), at 2¼ per cent depreciation, $2,007,485.

Now, suppose that the Complainant's plant had during the period over which this calculation, to reach the above amounts, was made, a net revenue of 10 per cent over and above depreciation, the cal-

culation on a basis of 8 per cent would reduce the investments at the rate of 2 per cent of the interest every year, and the most valuable plant would be reduced in value thereby and the least
204 valuable plant increased thereby. This is well illustrated by Defendants' Exhibits Nos. 33 and 34. It is manifest that this plan will in no sense of the word, aid us in reaching the true value of Complainant's plant, hence, no consideration is given thereto by me, because it is regarded and held to be incompetent therefor.

It is my understanding, however, that the Wisconsin Rate Commission do not apply this method, except for the purpose of enabling a company to recoup its losses, as hereinbefore stated, when in their judgment, it is equitably entitled so to do. While it is fair and just under the circumstances in which the Wisconsin Commission apply it, it is manifest that it is not in any sense of the word, competent evidence to prove the value of Complainant's plant, in a case wherein the sole issue is on the rates established by the ordinance in question, in this case so low that they are confiscatory and the ordinance therefore invalid.

205 *Klumpp.*

DEFENDANTS' EXHIBIT NO. 8.

XIX.

This Exhibit has been examined with care.

There are matters in relation to the valuation of the property favorable to the Defendants. It was originally introduced on the claim that it tended to show complicity with Klumpp, in the valuation of the property, by the Complainant's engineers, by reason of similarity in certain valuations in their several reports, but, the surprise to me is that there should be such a great difference between the engineers in their valuations, when it occurr-d to me there ought to be more unity therein.

Klumpp was not used as a witness in the case, but is in the employ of The U. G. I. Co., and holds an important position as such, and it is my recollection, is chief engineer for the company. (Page 15, Exhibit 30) gives a list of the officers of the Des Moines Gas Company, and his name does not appear among them. It does not appear that he had special authority to make the admissions claimed to be contained therein and bind the company thereby. It is only when the admissions of an agent are part of the res gestae that they are admissable against the principal. They are not admissable otherwise, except when they have special authority to make such admissions in behalf of their principal. This rule is just as applicable to corporations as individuals, except in officers who from the nature of their office are clothed with such authority. These rules are elementary Sioux Valley St. Bk. vs. Kellog, 81 Iowa 126; McPherrin vs. Jennings, 66 Iowa, 622). But granting that Klump had the authority, it is well settled that the—

206 "Whole admission is taken together; for though some part of it may contain matter favorable to the party, and the object is only to ascertain that which he has conceded against himself, for it is to this only that the reason for admitting his own declarations, namely, that the great probability is that they are true; yet, unless the whole is received and considered, the true meaning and import of the part, which is good evidence against him, cannot be ascertained. But though the whole of what he said at the same time, and relating to the same subject, must be given in evidence, yet it does not follow that on the part of the statements are to be regarded as equally worthy of credit; but it is for the jury to consider, under all circumstances, how much of the whole statement they deem worthy of belief, including as well the facts asserted by the party in his own favor, as those working against him." (Sec. 201, page 278, Greenleaf, Vol. 1, 13th Ed.)

If this be true of the admissions of the parties themselves, it applies even with greater force, where the admissions are claimed to have been made by an agent with authority so to do. Applying the rule to Exhibit 8 aforesaid, which on its face, purports to be a study of depreciation, and his rate therefor is 9.27 cents per M. C. F., and his rate 21.4 per cent, while that determined in this report is 6.57 cents per M. C. F. and rate 14.7 per cent. The valuation of the entire plant is $2,172,151.89, with going value and working capital deducted.

It is manifest that as a whole it would be a detriment to Defendants rather than a benefit. In my judgment, this Exhibit is of very little value in determining the issues in this case.

207 *Valley Junction.*

XX.

When the Des Moines Gas Company was organized on the 1st day of March, 1905, the property in Valley Junction was paid for in bonds at $45,000, but these bonds were only regarded as worth, at that time, 90 cents on the dollar, which indicates a cash value of $40,500. What additions have been made thereto since does not appear from the evidence, although there has evidently been an increase in the output of gas at that place. No valuation of this property has been made.

At this writing I am unable to say whether or not it can be eliminated, to such an extent that it need be so considered, because I have not yet examined the matter fully enough to determine, with reference to its earnings, but the same manufacturing plant is used for both, and it may be necessary to do so. Should it become necessary to do so, the value will be reckoned at what it cost, on the presumption that it has added enough in the way of improvements to maintain its cost. The depreciation any how, goes against it, and is reckoned on the entire amount of gas sold in Des Moines and Valley Junction combined.

208 *Rate of Return.*

XXI.

The next question, which in its logical order must be determined, is the rate per cent which under the circumstances the Complainant Company is entitled to earn on the value of its plant.

The Supreme Court of the United States in the case of Wilcox vs. The Consolidated Gas Co., 212 U. S., page 41, use this language.

"There must be a fair return upon the reasonable value of the property at the time it is being used for the public."

The question to be determined therefore is, what should that rate be? In the same case on pages 48 and 49, the court says:

"There is no particular rate of compensation which must, in all cases and in all parts of the country, be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality; among other things, the amount of risk in the business is a most important factor, as well as the locality where the business is conducted, and the rate expected and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them. There may be other matters which in some cases, might also be proper when taken into account in determining the rate which an investor might properly expect or hope to receive, and which he would be entitled to without legislative interference.

"One who invests his money in a business of a somewhat hazardous character is very properly held to have the right to a larger return without legislative interference than can be obtained from an investment in government bonds or other perfectly safe security.

The man that invested in gas stock in 1823 had a right to
209 look for and obtain, if possible, a much greater rate upon his investment than he who invested in such property in the City of New York years after the risk and danger involved had been almost entirely eliminated. In an investment in a gas company such as Complainant's, the risk is reduced almost to a minimum. It is a corporation which in fact, as the Court below remarks, monopolizes the gas service of the largest city in America, and is secure against competition under the circumstances in which it is placed, because it is a proposition almost unthinkable that the City of New York would for the purpose of making competition, permit the streets of the city to be again torn up in order to allow the mains of another company to be laid all through them to supply gas which the present case adequately supply. And, so far as it is given us to look into the future, it seems as certain as anything of such a nature can be, that the demand for gas will increase and at the reduced price, increase to a considerable extent. An interest in such a business is as near a safe and secure investment as can be imagined with regard to any private manufacturing business, although it is recognized at the same time that there is a possible element of risk even in such a business.

"The Court below regarded it as the most favorably situated gas business in America, and added that all gas business is inherently subjected to many of the vicissitudes of manufacturing. Under the circumstances, the Court held that a rate which would permit a return of 6 per cent would be enough to avoid the charge of confiscation, and for the reason that a return of such an amount was the return of ordinarily sought and obtained on investments of that degree of safety in the City of New York.

"Taking all the facts into consideration, we concur with the Court below on that question, and think Complainant is entitled to 6 per cent on the fair value of its property devoted to the public use. But assuming that the company is entitled to 6 per cent upon the value of its property actually used for the public, the total fixed by the Court below, is as we have seen much too large."

We have quoted so fully from this opinion, because so much that is said therein applies with equal force to the case at bar.
210 Especially is it true, of what is said in regard to the danger of competition and the rule of law which should govern in fixing the rates. The allowance of a rate which will enable the company to earn 6 per cent on the value of its property in the City of New York by the lower court, is clearly approved by the Supreme Court in its opinion, although on other grounds it was reversed. It was stated by Prof. Marks that the plant in question in the case was perhaps the richest gas territory in the world, unless it be the City of London, and no mains laid less than 8 inches in diameter. Naturally, there would be less hazard under such circumstances, and much less expense in laying and maintaining its mains in proportion to the gas consumed.

The Complainant during the past fifteen years, in order to meet the gains each year over the preceding year, in the consumption of gas, have been compelled to add to their investment, at the rate of $1.93 for every 1,000 cubic feet of gas on the average. This is explained more fully hereafter. It shows that the Complainant has been compelled, in order to take care of its increasing business, to add every year, largely to the investment. This might embarrass a company in straightened circumstances, but it has not done so in this instance. The owners of its stock are well able to meet the requirements of the growth of its business. Only the interest on its bonds and stock contracts have been paid, and the sum of $389,000 on the principal of its stock contracts. Whatever profits there may have been over and above the same, have gone into the plant. The bonded indebtedness during this time has been increased since January 1, 1907, $412,000, and hence the indebtedness of the company has slightly increased.

The Complainant Company during the past fifteen years, according to the table on page 29, Defendants' Exhibit 30, (Hall) has earned on the average during the past fifteen years 9.56 per
211 cent, but this calculation is much upon the depreciated investment, as I understand it. I have not verified these figures, but if calculated upon the investment without depreciation, it would in all probability not exceed 8 per cent. The calculations

made in the Wisconsin Plan, indicates that it did not earn, commencing with 1887, near that rate per cent. But in my judgment, what it may have been earning in the past, whether little or much so far as this particular question is concerned, are the issues herein involved, should be given little, if any, consideration.

So far as the hazards of the business of Complainant are involved in this action are concerned, it is not necessary to discuss them. They are at least as great as in the Des Moines Water Works Case, in which this Court during the past year, held that the company was entitled to 8 per cent. What the evidence may have been in that case cannot be considered here. The evidence in this case clearly justifies 8 per cent under the rule established in the Consolidated Gas Case.

It is authoritatively and very clearly stated by the Court in the following language:

"Such improvements *much* depend greatly upon circumstances and largely, among other things, the account of risk in the business is a most important factor, as well as the locality where the business is conducted, and rate expected and usually realized there upon investments of somewhat similar nature with regard to the risk attending them."

The evidence shows that in the banking business in Des Moines, from 8 to 15 per cent is expected and usually realized, that the rate of interest on notes secured by farm mortgages, from 5½ to 6 per cent; on manufacturing plants from 12 to 25 per cent; on loans secured by mortgage on residence property in the city, from 6 to 8 per cent; on business houses with an assured rental income, from 4½ to 6½ per cent. We call attention to the evidence itself
212 found in Vol. 2, from pages 1852 to 1981, of the record, which speaks for itself.

The Defendants cite the case of Shepard vs. Northern Pacific Railway Co., Supra., in which only 7 per cent was allowed. The Consolidated Gas Case, in which only 6 per cent was allowed by the lower court, and approved by the Supreme Court of the United States, would not be an authority upon which a like allowance should be made in this case, because the risks here would be somewhat greater, and the difference in the localities in the earnings expected and usually obtained in the two localities are not the same. It is a matter of common knowledge that the City of New York is the great money center of the United States, and an investment in the city itself, of so large an amount of capital as invested in the property and business of the Consolidated Gas Company, and its permanency renders it very desirable and would induce the investment of capital therein at a much less rate of return, than in the comparatively smaller plant of the Des Moines Gas Company, and really under the circumstances, 6 per cent of return therein would be a greater return accordingly than 8 per cent in the plant and business of the Complainant herein. Permanency is an important element in considering the rate of return.

In New York case, the taxes were like the case at bar—

"Where properly treated by the company as part of its operating

expenses to be paid out of its earnings before the net amount could be arrived at applicable to dividends."

(See page 52, 212 U. S.) and hence, there is only 2 per cent difference in the two cases. The 6 per cent return in New York was net, as also the 8 per cent here. It is equivalent to 10¼ per cent at least, considering the rate of taxation at 2¼ per cent on the full value of the property, when so assessed, which is not by any means always done in this state.

213 *Operating Expenses.*

XXII.

The question of operating expenses, arise in this case, not for the purpose of determining whether or not the Complainant shall be allowed certain disputed credits which appear upon its books as part of the operating expenses of the plant, but to enable us to judge therefrom, so far as possible, what the future operating expenses of the plant will be in the manufacture and distribution to consumers of gas, in order to enable us to determine what the probable profit to the company will be from the rates which it is permitted to charge under the ordinance in question in this case. There are certain claims which the Complainant makes with reference thereto and which are disputed by the Defendant, that it is deemed best to determine first before proceeding to the main question, which is the future cost of manufacturing and distributing gas, and what will be the probable net profit to the company therefrom, and these questions will be determined under their appropriate head.

1st. Rate Regulation Expense.

Complainant claims that in estimating the net profit for manufacturing and distributing gas to its customers, that there should be taken into account and allowance made for the necessary expenses which it has and will incur in connection with the establishment of rates in this action. In other words, its expenses in this action, not covered by the costs of suit. In my judgment, no allowance therefor can be made in determining the future cost of gas for the following reasons:

214 1. Should this ordinance be held valid, then this action is without merit and should not have been instituted by the Complainant.

2. Should the ordinance be held valid, then the costs of suit, which will be taxed in its favor, are in contemplation of law, the measure of its recovery, so far as this action is concerned, and the recovery of costs against the Defendants satisfies them.

3. Such expenses might result in rendering an ordinance otherwise valid, invalid. The amounts expended in the year 1910 are shown to be the sum of $5,935.15, which were excluded by James Hall in Exhibit 30, page 16, in estimating the cost of producing and furnishing gas to its customers by the company and since, during 1911, about $60,000. (Complainant's Exhibit No. 93.)

The Complainant does not claim, as understood by me, that such expenses should be considered for the years in which they were incurred, but that a reasonable allowance therefor should be made in estimating the future cost of gas, that in the course of time would enable it to recoup such expenses, but for the reasons hereinbefore stated no allowance whatever is made therefor.

2d. Salaries of Officers.

The salary of Jansen Halnes as general manager of the plant at Des Moines, during the month of February, A. D. 1911, raised from $7,500 to $10,000, and hence, the Defendants claim that it should not be considered beyond the original salary. The salary was so established by a vote of the directors of the Des Moines Gas Company, and takes effect from and after January 1, 1911. (See Defendants' Exhibit No. 27, page 208, being the record of the Stockholders and Directors' meeting.)

215 Jansen Haines had been the general manager of the Complainant's works and business at Des Moines since 1903, and has evidently been a very efficient man for the position, and rendered excellent service as such, and no question is made that he has not rendered his employers, as well as the public, satisfactory service. The nature of the business and of the product manufactured demand a man in charge of the works and its business who is an expert gas engineer, as well as a capable business man, in order to to discharge properly and economically the duties of his position, and a salary of $10,000 per year, in my judgment, is not excessive. There is nothing to indicate that the amount of his salary depends in any way on the result of this action. Early in July of the year 1911 he was elected president of the company, without any further increase of salary, and this eliminates any question of the salary of S. T. Bodine, his predecessor.

The increase in salary adds .47 of 1 cent per M. C. F. to the cost of gas per year. (See Defendants' Exhibit 30, page 15.)

4. It appears from the evidence in the case that prior to November, 1909, that The United Gas Improvement Company, owner of the stock of the Complainant Company, had rendered the Complainant a great deal of service for a good many years without any specific charge therefor and the Complainant had never paid anything therefor, and it was finally determined that the services should be remunerated. (Record, page 2810.) As a way of compensation for these services at a meeting of the Board of Directors of the Complainant Company, on the 20th day of October, 1909, the following salaries were voted to the parties below named. (Page 185, Defendants' Ex. No. 27, Stockholders and Directors' minutes.) Record, pages 2810 to 2834, fully explains this matter. At this meeting the salaries to these officers were voted and the in-

216 cumbants until the election of Jansen Haines, President, were as follows:

S. T. Bodine—President	Salary..	$2,500
Walton Clark—Vice President	Salary..	1,800
Lewis Lillie—Treasurer	Salary..	1,600
W. F. Douthirt—Secretary	Salary..	1,600
J. A. Pearson—Purchasing Agent	Salary..	2,500
Total		$10,000

These officers were each and all at the same time also, officers or agents of The United Gas Improvement Company.

The salaries of these officers are all paid to The United Gas Improvement Company, although the salary checks and vouchers are made out in the Treasurer's office in Philadelphia, and sent to Des Moines for signature, and after signed and returned to Philadelphia, and indorsed by officials there. The vouchers are retained in Philadelphia. A journal entry is made charging the salaries and crediting the treasurer's account (Record 3151.) It is evident that the purpose of allowing the salaries in question was in this way to compensate The United Gas Improvement Company for services rendered the Complainant through these parties who were in its employ and paid by it. Page 77. (Record, pages 2834 and 2835.) There is no evidence that shows that the services so rendered are in fact worth the amount represented by these salaries, and in my judgment, their allowance and payment would not be prima facie evidence thereof. Neither is it shown that these salaries are an integral part of the salaries paid by The United Gas Improvement Company, hence their allowance would permit the company to reap a profit upon the salaries of these officers, unless it be so shown by the Complainant, which has not been done. There is, therefore, no basis upon which an allowance can be made therefor, in determining the future cost of producing and distributing gas
217 by the Complainant Company to its consumers, and hence, no allowance is made therefor. This amounts to 1.88 cents per M. C. F. of gas.

5. In the operating expenses under the head of "Expenses Extra," are the following amounts which were paid by the Complainant as contributions to the Greater Des Moines Committee and capital stock of the Coliseum Company. (Defendants' Exhibit 30, page 15.)

Two months ending February 28, 1906	$27.50
Year ending February 28, 1907	1,914.50
Year ending February 28, 1908	1,371.65
Year ending February 28, 1909	2,062.31
Ten months ending December 31, 1909	3,392.36
Year ending December 31, 1910	3,964.78
Total	$12,733.10

A more detailed statement of these expenditures is given by Mr. Hall in his testimony and found on page 3154 of the Record, Vol. 3. For the ten months ending December 31, 1909, they are as follows:

Commercial Club	$265.00
Y. M. C. A	100.00
Material supplied Y. M. C. A	205.25
Methodist Hospital	100.00
Greater Des Moines Committee	1,500.00
Coliseum Co., capital stock	500.00
Christmas gifts to staff	655.00
Haines, for extra expense	67.11
Total	$3,392.36

Year ending December 31, 1910—

Commercial Club subscription	$200.00
Y. M. C. A	100.00
Methodist Hospital	100.00
Greater Des Moines Committee	2,225.00
Mercy Hospital	400.00
Christmas gifts to staff	711.00
Roadside Settlement	50.00
Sundries	178.78
Total	$3,964.78

218 6. In my judgment, no criticism can be made for these expenditures for the past. The Greater Des Moines Committee, as I understand it, is a committee of its citizens for the purpose of "boosting" the city, and as a matter of course any increase in the business prosperity and population, will result beneficially to the Complainant. Its business will at least be affected to some extent, either by the city's prosperity or the lack of it.

The item to this committee is much the largest. The other subscriptions are to be commended. The Christmas gifts to the staff, sundry charities, the subscriptions to the hospitals, Young Men's Christian Association, are all for a worthy purpose, but what shall be allowed for the future is the question. When these gratuities create no binding obligation for the future, and when allowed may not be expended by the company. That something should be allowed is clear. There is no evidence to show that a future subscription to the Greater Des Moines Committee will be allowed or required, or that it will be in any way an obligation against the company, which it should or will be required to meet. The balance, $1,739.78, may very properly be considered, and this is about .30 of a cent per M. C. F. of gas. They will likely be called upon to exercise charity to that extent at least, and should do so. It will not change the result in this case.

7. The United Gas Improvement Company have an Auditing department, and at least each year, its general auditor investigates and audits the accounts of the Des Moines Gas Company quite thoroughly and carefully for the purpose of determining the correctness and integrity of its management.

The expenses of the traveling auditor are charged to the Des Moines Gas Company, while engaged in auditing its accounts. No

charge is made for the time or services of the auditor except
219 the expenses as aforesaid. These expenses, in my judgment, are properly charged to operating expenses. The practice of so auditing its accounts by the stockholders is to be commended, rather than criticized, and tends to promote economy and integrity in its management, to the benefit of the stockholders and the public alike.

8. The repairs for the year 1910 are much greater than for the preceding years. It does not appear that they were unnecessary. This is not surprising, and is a matter of common experience, that some years the cost of repairs will greatly exceed other years. An average of the repairs for at least five years will give more nearly a correct result.

9. In view of the times, and the increased cost of living, an increase in the salaries of the employés was almost inevitable.

10. It is more likely that the taxes will be increased than diminished in the future, should the property be taxed at its value.

3d. Insurance.

11. The ordinary insurance, which the company has been carrying, should and has been, included in the operating expenses. But beyond this none other should be considered. In determining the rate of return, the hazards of the business are all eliminated by casualty insurance, then, the rate of return should be diminished. The Exhiibts of Complainant on this claim No. 89, have been given no consideration beyond fixing the rate of return.

Only the ordinary insurance which are shown by the operating expenses are allowed.

220 *The Cost of Producing and Distribution of Gas.*

XXIII.

W. J. Hagenah, in Complainant's Exhibit 23, on page 14, gives the cost of manufacturing and distributing gas for the year ending December 31, 1910, as follows:

Manufacturing	$165,466.44	Per M. C. F.	31.10c
Distribution	45,187.02	Per M. C. F.	8.47c
Commercial	47,951.04	Per M. C. F.	9.01c
New business	24,173.23	Per M. C. F.	4.54c
Other expenses	31,551.04	Per M. C. F.	5.93c
Taxes	38,580.81	Per M. C. F.	7.23c
Total	$362,909.58	Total	66.28c
		$352,909.58	
This includes—			
Salaries general	$10,000		
Rate litigation	5,602		
Expense, extra	2,225		
		$17,827.00	
Balance		$335,072.58	Per M. C. F. 62.98

This includes Valley Junction.

2. Now we turn to Exhibit "D," Defendants' Exhibit 30, and for the year ending December 31, 1910, we find that the cost of gas is as follows:

Manufacturing	$165,466.14	31.10
Distribution	45,187.02	8.47
Commercial expense	47,951.04	9.01
New business	24,173.23	4.54
General expense	26,024.09	4.89
Taxes	38,420.57	7.22
Total cost	$347,222.39	65.23

221 The difference in the taxes is caused by Hall moving the taxes paid in 1910 to the year 1909. The taxes for 1909 were $1,447.61; and for 1910, $1,287.39, which is the difference in the two years ending December 31, 1909 and 1910, of the Federal taxes. Hagenah puts into his account rate regulation as $5,602, but Hall rejected it and the amount is evidently $5,526.95. Why they do not agree on this amount does not appear from the reports.

Eliminate from Complainant's Exhibit 23, the following items, to-wit:

Greater Des Moines Committee	$2,225.00	
Rate regulation expense	5,602.00	
Salaries, general	10,000.00	
Total amount by Hagenah	$17,827.00	
Which taken from his total		$352,909.00
		17,827.00
Leaves		$335,082.00

and the result is the cost of gas for the year ending December 10, 1910, which is 62.98 cents per M. C. F., and eliminating—

Subscription to Greater Des Moines Committee	$2,225.00	
Salaries, general	10,000.00	
Total amount by Hall	$12,225.00	
Which taken from his total expenses		$347,222.39
		12,225.00
Leaves as total operating expenses		$334,997.39

and the cost of gas per M. C. F. 62.98 cents. Which makes a very slight difference for the year ending December 31, 1910, between Hall and Hagenah.

222 3. We have in Complainant's Exhibit 93, the actual total gas manufactured, and the total cost of manufacturing it, for the first ten months of the year, which is 77.14 cents per M. C. F.

and it includes salaries general, 1.85, and rate litigation, 13.31; and expense extra, .25; which deducted leaves 61.73 cents. The .25 is amount above .30 allowed.

4. Again, the average for the five years ending December 31, 1910, is given on page 5 of Defendants' Exhibit 30, per M. C. F. as 63.34. This includes, however, under the head of "Expenses General," .50 of a cent per M. C. F. and .26 of a cent for "Salaries Extra" above what is heretofore allowed therefor, making a deduction of .76 of a cent and reducing the average for the five years to 62.58.

5. Then, again, take the lowest year ending February 28, 1909, and the total cost per M. C. F. for that year is 59.73 and it includes a fair average for manufacturing, being .06 of a cent different from the average for five years. There is, however, a difference in the taxes for that year of .70 hundredths of a cent, raising it to 60.43. In reckoning for the future cost of gas per M. C. F., all of these figures call for an adjustment of the 2 per cent taxes of .20 of a cent, by reason of the reduction of the rate from $1.00 to 90 cents per M. C. F., but this is taken care of hereafter.

6. Now, let us take each of these rates and add thereto 6.67 in order to ascertain the net revenue thereunder for the year 1910 and in so doing, I am leaving out of consideration Valley Junction, except so far as determining the cost of gas. On the figures under the reports of Hall and Hagenah, which are both the same, we have made 69.65 and gives a profit of 20.35 cents per M. C. F.

7. The total gas sold in Des Moines during that year ending December 31, 1910, was 521,486.354, which would make at 20.35 cents per M. C. F., the sum of.....$106,122.45

223 These figures include miscellaneous sales.

8. The average as having before shown for the five years, minus the estimates made is..... 62.58
With depreciation added, makes..... 69.25
And a net return of 20.75 per M. C. F. on same amount of gas gives us.....$108,208.50

This includes miscellaneous sales.

9. Then, take the cost of gas for the first ten months of the year 1911, which is..... 61.73
As shown before and with depreciation added, we have. 68.40
And a net return of..... 21.60
Which on same amount of gas gives a net return of....$114,912.00

Add miscellaneous sales.

10. Take the lowest year with difference in taxes, .70 added and then add 6.67 for depreciation and we have 67.10 with a net return of 22.90 per M. C. F., which on the same amount of gas gives us a net revenue of $119,420.35—with miscellaneous sales added.

11. The reckoning for the year 1910 does not include the increase of .47 of one cent, caused by the increase in salary of Jansen Haines

from $7,500 to $10,000, but it does include for the year ending February 28th, 1909, the increase in taxes because that would exist for that year. Even, if in all other respects, the expenses would and should be the same for the year ending December 31, 1910, the increase per M. C. F. would be inevitable, and for comparison should be reckoned at the 1910 rate. Of course, no one can foretell what the assessment of the Complainant's property will be in the future, but if it is assessed at its fair market value, as determined in this action, then it is manifest that the assessment will be increased at least $1,000,000, which would increase them something like $22,500, at 2¼ per cent on the actual value. This is inevitable, unless
224 they are decreased by reason of a low assessment on other manufacturing plants. The increase in salary is evidently included in Complainant's Exhibit No. 93.

12. James Hall, Defendants' Exhibit No. 30, page 7, allows $1,000 for the difference on the former ordinance, and the one in question, which would be caused by reason of the failure of the latter to include the provision for discount to induce prompt payment, but in my calculation, it is placed at .20 of one per cent, only $64.00 over Hall's estimate, and adjusts the difference in 2 per cent tax on the year's receipts, and accounts for their omission in the foregoing calculations.

13. No insurance is included in any of the figured calculations, except such as were actually paid, neither accident nor fire insurance. As before stated, to some extent these hazards are included in the rate of return, what has been actually paid, and what insurance the company has carried has been considered and allowed.

14. Oil is a very important ingredient in the manufacture of gas. The cost per M. C. F. has decreased from the two months ending February 6, 1906, 18.11 cents per M. C. F. to 11.49 cents for the year ending December 31, 1910, a difference of 6.62 cents per M. C. F. The Complainant uses a distillate of the crude oil, which according to the purchasing agent, J. A. Pearson, gives better results than the crude. (Record, page 4824, Vol. 4.) The company at present has a three-year contract which began in the year 1909, June 1st, (Defendants' Exhibit No. 20) at 2.80 cents per gallon, but this is much lower than paid prior to this time, which was, 1905, 4.4 cents; 1906, 4.5 cents; 1907, 4.55 cents; 1908, 3.11 cents per gallon. (Record, page 3382, Vol. 3—Hall.) In my judgment an average price during the past five years would be fair, but the reckonings for the year 1910 on the various bases given as well as
225 for 1911 are 2.80 cents per gallon, except that for the year ending February 28th, 1909, and the average for the five years, which are at the average prices for oil. There has been a steady decrease since 1905, in the cost of manufacturing gas, but the other expenses fluctuate very much during the past five years and are likely to do so in the future from their very nature, but the manufacturing cost is not likely to decrease so greatly in the future as in the past, but the cost of oil, coke and coal will have a good deal to do with it.

15. There has been a decided increase in the residuals, and a decided decrease in the leakage, only 1.35 cents for the year 1910,

which shows the appliances for distributing and measuring gas in good condition and performing their work well. Whether the increase in residuals results from increase in sales, or in the manufacture, does not appear from the evidence.

16. It is proper here for me to call attention of the Court to the fact that there are very great variations from year to year in the different classifications under which the accounts are kept, of the cost of manufacturing and distributing gas, but when for the last five years there are no very great differences in the ultimate results for each year.

In studying these various classifications, it has become evident to me that there is no such thing as scientific accuracy with reference to the cost of either producing or distributing it, and that is one reason why the estimate of rates should be made, upon a fair basis, and should consider rather an average result than a scientific one, because they may one year fall below a reasonable return, and the next, exceed it, and hence, a rate that on the average will be just to both parties, for a term of years, should be sought, rather than to undertake to reach one based upon scientific accuracy, and for that reason, the different results and income therefrom are given.

226 Taxation.

17. The Defendants introduced in evidence the statement of the Des Moines Gas Company to the assessor for the City of Des Moines, Iowa, Charles W. Schramm, which bears date March 14th, 1908, and the assessed valuation is $1,002,020. (Defendants' Exhibit No. 1.) The attention of the Court is called to this exhibit, and its contents. It is the first exhibit in the book of Defendants' exhibits. It is manifest that the valuation for the year 1908 is too low, or else the value of the plant as determined in this report is not correct. It has been my observation that valuations for the purpose of taxation are usually of little value in determining the true value of property. Neither its earning power, nor from the standpoint of the investment, can so low an estimate of its value at that time be justified and it is of little, if any, value on the question of the worth of the plant January 1st, 1911. It in no way operates as an estoppel upon the Complainant to show that its value is greater. Property owners are usually anxious to keep the assessed value of their property as low as possible. It is a matter of common knowledge and it is rare to find a tract of real estate assessed at its full market value.

The assessor usually determines the valuation for assessment. Whether it was the intention of the officers who verified it to verify the value itself, will better appear by the statement itself. If so, it is evident to me they were mistaken, and the valuation under the evidence in this case could not be accepted, even as of the date made.

The Complainant has offered in evidence a similar return for the year 1909, which puts the Des Moines plants'

227 value at $2,164,000
And Valley Junction plant at..... 28,400

Making total $2,192,400

(This is Complainant's Exhibit 45.)

Then again, for the year A. D. 1910, the Complainant returned a similar statement to the assessor in which the valuation is put at $2,230,400 for taxation. (This is Complainant's Exhibit No. 46.) James Parker, City Assessor.

Then again, for the year 1911 a similar return was made which fixes the value of the property at $3,380,000, including Valley Junction. (This is Exhibit No. 47.) James Parker, City Assessor.

Now, it is very clear that on the question of the value of the property, that it is not even competent evidence for the Complainant and should have no weight whatever, and has been given none on the question of value, but when it comes to the future taxation of the plant and the amount thereof as applies to the future cost thereof per M. C. F. it is competent. James Parker was assessor and assessed the property for the years 1909, 1910 and 1911, and the returns hereinbefore given were made to him, and for the year 1911 he assessed the property at $1,350,000. (See Record, page 3042; also pages 63 and 66, Vol. 3.)

For the year 1909 it was assessed for the sum of $1,250,000 (Page 3065) and it is my recollection for the same amount for 1910. At least it was not more than $1,300,000, but I cannot find the page of the record on which it appears. This was greatly below the returned value, and should the assessor hereafter conclude to fix the value at what it is claimed is correct value, then the assessment will be greatly increased, and he would be justified in increasing it over $1,000,000, which would increase the taxes to the amount of about $22,500, and the taxes would be increased accordingly. Of course such an
228 increase would only be justified when other property was assessed upon the same plane of value. The law requires it to be assesed at its market value, and it should be assessed as a going concern.

Electric Light Co. v. McCray, 133 Iowa, 626.

The evidence, however, of Mr. Parker on the question of the value of the property is and has not been regarded by me as incompetent, nor is he regarded as an incompetent witness. His qualifications are derived from his experience as an assessor, not from any special knowledge of the value of such a plant.

229 *Future Increase of Capital.*

XXIV.

1. It is necessary to examine the annual increase in the sales of gas, in connection with the increase, in extensions and improvements in order to determine therefrom, as far as possible, what will be the probable increase thereof, as compared with the annual increase of the revenue from the sale of gas.

The statistics here are taken from Schedule 4, Defendants' Exhibit 30, by Hall, and the first column below shows the sales of gas for each year from and including 1895 to and including A. D. 1910. The second column shows annual gain over the preceding year. The third column shows the number of meters installed and

the fourth shows the gas sales per meter each year. The year is given on the left of these statistics.

The gas sales are given per M. C. F. as in the table from which taken.

The calculations in the first table are all from this exhibit, except the gain in C. F. of gas which are my own. The gain is given in cubic feet because the gain per year can be better comprehended therefrom than by the percentage method.

230

Year.	Gas sales.	Gain M. C. F.	Meters.	Gain per cent.	Per meter.
1895....	61,100	....	2,448	[Gain in Meters.]	24.56
1896....	76,435	15,335	2,868	380	26.65
1897....	83,951	7,516	3,479	611	24.13
1898....	93,613	9,662	4,127	648	22.68
1899....	109,821	16,208	5,308	1,181	20.69
1900....	141,931	32,110	6,425	1,117	22.09
1901....	160,990	19,059	7,682	1,257	20.96
1902....	206,765	45,775	8,898	1,216	23.24
1903....	244,245	37,570	10,395	1,497	23.50
1904....	292,407	48,162	11,436	1,041	25.57
1905....	334,405	41,998	12,940	1,504	25.84
1906....	372,102	37,697	14,640	1,700	25.42
1907....	429,519	57,417	16,073	1,433	26.72
1908....	461,178	31,659	17,100	1,027	26.97
1909....	497,245	36,067	18,439	1,339	26.97
1910....	531,991	34,746	19,736	1,297	26.96
Total.....		470,891			

Total last five years, 197,586.

This shows the gain per M. C. F. each year and the sales per M. C. F. per meter each year, and shows the increase per meter of gas during the latter part of period over what it was in the early period. It is surprisingly regular during the last three years.

The balance of this table is not given for the reason that it is not pertinent to the matter that I am endeavoring to ascertain, which is the increase of the investment according to the gain in sales. However, I refer to it, and regard it as important and interesting.

3. The next table is taken from Schedule 5 of Defendants' Exhibit 30, and is as follows:

Year.	Mains.	Services.	Meters.	St. lamps.
1895	3,819.39	2,364.04	1,907.67	73.72
1896	23,139.46	6,878.75	3,633.28	2,253.99
1897	20,124.25	6,901.35	5,008.82	1,097.51
1898	12,967.43	7,715.55	5,705.91	757.70
1899	13,917.29	10,897.10	12,762.77	184.45
1900	7,934.00	16,944.01	8,244.95	313.91
1901	38,824.34	23,339.32	9,917.55	1,190.81
1902	24,973.12	17,842.59	8,266.88	702.11
1903	48,563.18	21,923.57	17,205.25	35.91
1904	23,998.35	14,913.00	5,221.91	54.43
1905	65,473.12	19,306.48	20,530.80	1,805.52
To 3-1, 1906	2,817.72	1,770.31	4,136.04	88.71
Totals, Mar. 1, 1906	$286,552.25	$150,796.07	$102,541.83	$8,449.91
Year ending 2-28-'07	87,672.28	14,738.11	24,972.51	1,587.60
Year ending 2-28-'08	52,716.86	12,537.90	12,457.74	144.31
Year ending 2-28-'09	21,273.23	12,636.45	5,878.42	268.61
10 mo.	30,816.95	14,001.87	12,361.21	39.13
1910	50,206.78	18,578.95	12,715.06	....
Total	$242,686.12	$72,493.28	$68,364.93	$2,039.65
Add to Mar. 1, 1906	2,817.72	1,770.31	4,136.04	88.71
	$245,503.84	$74,263.59	$72,500.97	$2,128.36

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Average last 5 yrs.	$1.2425	$ .3754	$ .3664	$ .01
1910	1.502	.5304	.334	...
	1.099	.4603	.35	.021

Total average for whole 15 years	$1.98
Total average for 1910	2.366
Total average last 5 years	1.996
Average for the first ten years	2.116

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4. In determining the future, with reference to the increase of gas, it becomes necessary to examine the past with reference to its increased output each year, over the preceding year, and at the same time examine the increase of capital rendered necessary thereby, to take care of this annual increase of consumption, and for that purpose the foregoing tables were prepared. The last table shows the investment in mains, meters, house and street lamp services. The first table shows the gain each year over the previous year per M. C. F.

Now, when the total of mains, meters, house and lamp services for each year is divided by the gain for that year, it gives the additional investment for that year for each M. C. F. of gas, of said gain over the preceding year. For the first ten years, beginning with 1896, the additions per M. C. F. are as follows:

1896, $2.34; 1897, $4.32; 1898, $2.82; 1899, $2.33; 1900, $1.04; 1901, $3.83; 1902, $1.13; 1903, $2.33; 1904, $0.91; 1905, $2.52. The average for the ten years is $2.11 per M. C. F.

The gain in gas is given by the calendar year for the next five years, but the additions in investment are not, and hence simply the average for the same is given which is $1.996, and the average for the 15 years is $1.92. The year 1910 gives the gain over the preceding year and additions for that year also, and it is $2.366.

When the investment is light for any year during the ten-
233 year period, it is almost invariably followed by an increase during the next year. It shows that in the past while the gains each year over the preceding year were rapid, at the same time the rapid increase carried with it a corresponding necessity to increase the additions, in order to accommodate it. During the first period it averaged $2.11 per M. C. F. and about $1.996 for the last five years. It is evident to me that we may expect at least $2.00 additional capital each year for each M. C. F. of gas gained over the preceding year, and the interest at 8 per cent thereon would be 16 cents. The evidence of the engineers indicates that it will be increased rather than diminished. Professor Marks testified (Pages 2349 and '50, Vol. 2, Record) that when the annual output reached 600,000 M. C. F., that a new holder would become a necessity. (See also Record, pages 2708 to 2716, Vol. 2.) Henry I. Lea (Record, pages 1034 to 1046.) W. A. Baehr (Record, pages 1581 and 6, Vol. 2.) W. W. Randolph (Record, page —, Vol. 2).

5. According to my recollection, the maximum for any day during the year was 2,228,000 C. F. (See Record, page 1581, Vol. 2) and the capacity of all the holders is only 1,607,000 C. F. and, comparing the highest daily output therewith, it will be seen at their utmost capacity they cannot keep in the holders more than two-thirds of such a day's supply for distribution. The highest daily output must be considered in determining the holder capacity necessary, and the increase in their annual sales will soon render it imperative that greater holder capacity must be provided. Any accident occurring that would stop its manufacture would put the city in darkness and render it necessary before they could turn on the

gas, to see that every burner in the city was closed, otherwise very disastrous results might follow.

6. But, to return to the tables again. It will be seen by reference to Defendants' Exhibit 30 that Schedule 5 only gives the additions in mains, meters, services, lamp and house, and
234 does not include the holder which The U. G. I. Co. erected in the year 1904, at the cost of $103,958, which the Des Moines Gas Company paid with $120,000 bonds March 1st, 1906. The total annual increase for the past fifteen years has been 470,891, and the average for the fifteen years for the above holder would be 25.5 cents per M. C. F. and would add that much to the general average of additions during the fifteen-year period over which it runs. It added to the five-year annual increase would make $2.25 per M. C. F. of gas manufactured and sold of additions including the holder and 8 per cent interest thereon would be 18.00 cents of interest upon the increase of capital invested, caused by the increase in the annual output over the preceding year, when the cost of the holder is included.

7. What this new holder would cost, rendered necessary when the annual sales reach 600,000 M. C. F., Professor Marks did not state, but it should be at least a 2,000,000 C. F. holder, and judging from the cost of the other holders, would probably cost $175,000. In all probability, as much on the average increase for the next fifteen years as for the past, Baehr puts its cost at $175,000. (Record, page 1852.) That the mains, meters and house services would be as great is more than likely, in view of the past, because the later years indicate a greater increase per M. C. F. thereof, than the average. There will be necessary, also, other additions in the manufacturing plant. The enlargement of the purifiers and also additional generators. (See former references.) These are matters that must be considered in determining results in the future upon the increase of sales. This is,—Should there be any year an increase of 50,000 M. C. F., we must calculate that it will add at least to the capital $2.00 per M. C. F. for mains, services and meters alone, which would increase the value of the plant accordingly.

8. The difficult question to determine is the effect which
235 the reduction of ten cents per M. C. F. will have upon its present consumers. Will it result in an increase of consumption sufficient to increase the net increase, so that it will be a reasonable return upon the value of the Complainant's plant, and capital invested in the manufacture of gas? Increase of consumption, either per meter or per service, which are already installed, renders no additional investment necessary and hence does not add to the capital invested in the plant. The only thing in the past history of the plant that throws any light on the question is the table on Schedule 4 of Defendants' Exhibit 30, a part of which has already been given. Third column from the right shows the percentage of increase of sales per M. C. F. over each preceding year, but I have not used it because the basis of percentage changes each year, and instead of following the percentage my calculations are based on the actual figures. We now give below from the same

table, Schedule 4, the year, population, meters, gas sales per M. C. F., as follows:

Year.	Population.	Meters used.	Sold per meter.	Per inhabitant. M. C. F.
1895.....	56,500	2,488	24.56	1.08
1896.....	57,000	2,868	26.65	1.34
1897.....	57,800	3,479	24.13	1.45
1898.....	59,000	4,127	22.68	1.59
1899.....	60,500	5,308	20.69	1.82
1900.....	62,100	6,425	22.09	2.29
1901.....	64,500	7,682	20.96	2.50
1902.....	67,200	8,898	23.24	3.08
1903.....	70,000	10,395	23.50	3.49
1904.....	72,900	11,436	25.57	4.01
1905.....	75,600	12,940	25.84	4.42
1906.....	78,000	14,640	25.42	4.77
1907.....	80,200	16,073	26.72	5.36
1908.....	82,300	17,100	26.97	5.60
1909.....	84,400	18,439	26.97	5.89
1910.....	88,900	19,736	26.96	5.98

236 It will be remembered that during the fifteen years covered by this table that the price of gas was reduced from $1.40 to $1.00 per M. C. F. During 1896 and 1897, it was $1.40; 1898 and '9 it was $1.35; 1900 and 1901, $1.30; 1902, '3 and '4, $1.25; 1905, $1.20; 1906 to 1910, inclusive, $1.10; but during all this time reduced ten cents per M. C. F. when paid promptly on or before the middle of the month following its consumption.

9. There is a very slight increase after it reaches one dollar per M. C. F., but the preceding years does not indicate whether from decrease in price, judging from the preceding years, it is difficult to say. They vary so greatly up and down during that time that I am at a loss to determine why, but if from cheapness not much over 1,000 feet per meter. While a slight increase in consumption may result from a reduction of ten cents per M. C. F. in price, in my judgment, it is much more apt to result in an increase of customers, and the table in Schedule 4 very clearly shows it, in the increase thereof, in proportion to the inhabitants of the city, as shown by the first column on the right of the table.

10. There is another interesting matter shown by this table in Schedule 4, that in my judgment, bears on the future increase on the sales of gas, to which attention should be called.

In the following table, we give the year, then the gain in sales for the year, population and number of inhabitants per meter.

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Year.	Annual gain.	Population.	Per meter.
1895	....	56,500	22.71
1896	15,335 M. C. F.	57,000	19.88
1897	7,816	57,800	16.61
1898	9,662	59,000	14.30
1899	16,208	60,500	11.40
1900	32,110	62,100	9.67
1901	19,059	64,500	8.40
1902	45,685	67,200	7.55
1903	37,570	70,000	6.73
1904	48,162	72,900	6.37
1905	41,998	75,600	5.84
1906	37,697	78,000	5.33
1907	57,417	80,200	4.99
1908	31,659	82,300	4.81
1909	36,067	84,400	4.58
1910	34,746	88,900	4.50

Now, if you will notice there was only one out of 22.71 of the people of Des Moines in 1895 who were using gas, and if you will follow the column down year after year, you will see that each year more and more of the people were using gas each year, until the close of the year 1910, there was a meter to every 4.50 of its people, and that during the last five years there was a marked decrease in the gain, except for the year 1907, which shows the greater annual gain of any year during the fifteen-year period, but the three years following the annual gain, dropped considerably over 20,000 M. C. F., indicating that in a large degree *that* it came from the increase in population, and from new houses rather than from supplying gas, to former residents, who had not been induced heretofore to use it. From 1906 to 1910 inclusive, there is only a difference of .83 of a person to the meter. It is clear to me that in the future the annual gain will largely depend upon the increase in population, and the erection of new residences, for their accommodation and consequently the extension of mains, to accommodate them.

238 The tendency in the erection of new residences is rather to the outlying districts than to the use of vacant lots within the residence districts, very likely from the efforts of the real estate dealers to bring their property into market. This is indicated by the various contracts, and advancing of money to secure the laying of mains within the new territory which they were putting on the market for sale.

239 *The Year* 1911 *and Its Results.*

XXV.

The following table is a comparison of the sales per month for the year 1910, with the sales for the first ten months of the year 1911, as shown by Complainant's Exhibit 91, as follows:

Months.	Sales 1910.	Sales 1911.	Loss and gain.
January	48,485,753	55,897,877	7,412,124
February	44,189,507	48,729,565	4,540,058
March	45,005,147	45,299,650	294,503
April	40,333,915	44,273,224	3,939,309
May	41,014,962	43,022,181	2,007,219
June	41,909,816	39,588,566	Loss 2,321,250 Loss
July	34,257,787	36,527,004	2,269,217
August	34,572,531	37,570,286	2,997,755
September	49,249,780	50,684,620	1,434,840
October	50,179,948	48,418,516	Loss 1,761,432 Loss
November	50,214,035		
December	52,577,873		
	531,991,054	450,011,489	20,812,343

The percentage of gain over the previous year is 4.84 per cent and applied to the total of the last two months gives us for them a gain of 4,975,128
Making for the year..... 25,787,571

This tends to show that the future percentage of gain is not likely to be so great as in the past fifteen years. The actual figures on an average of $2.00 per M. C. F. of additional investment, for mains, house and lamp services and meters of $41,624.65 for the ten months and on the estimate for the year $51,575.10, while for the ten months the actual amount is $47,654.48 as per Defendants' Exhibit 68.

240 It is claimed in argument that the gain over the year 1910 is decreased by reason of the litigation in regard to the rates, but there is nothing to indicate it, and from the data heretofore given, about what might reasonably be expected, and satisfies me that the output for the City of Des Moines will not reach 600,000 M. C. F. much before the close of the year 1913, even if it does then. This will take nearly 80,000 M. C. F., a little over 25,000 M. C. F. per year. It depends upon the growth of the city very largely. Eighty thousand M. C. F. of gain indicates an increase of capital to the amount of $176,800. This, in my judgment, is less than the evidence of the engineers, testimony will justify according to the references heretofore given. It makes the physical value at that time $2,276,800 and including going value $2,576,800, on which the Complainant is entitled to a reasonable return, after deducting depreciation.

In this connection permit me to call the attention of the Court to what is said on this subject by the Supreme Court of the United States in the case of Knoxville vs. Knoxville Water Co., 212 U. S., pages 14 and 15, as follows:

"But the decision in the court below was based solely on the operations of the fiscal year ending March 31, 1901, and the amount of the net income ascertained, namely, $36,000, was obtained by applying the reductions made by the ordinance to the operations of

that fiscal year. We think it was error to confine the investigation to, and base the judgment upon, that year alone. The precise subject of inquiry was, what would be the effect of the ordinance in the future operations of the preceding fiscal year, or of any other past fiscal year, were valueless, if the year was abnormal, and were only of significance so far as they foretold the future. If, as in this case, sufficient time has passed, so that certainty, instead of prophecy can be obtained, the certainty would be preferable to prophecy. In this case there would be no absolute certainty, because the operations of the years succeeding to the ordinance is relevant, and of great importance, and by a consideration of such evidence a greater degree of certainty could be obtained."

241 The principal is here fully stated, and it is not necessary to quote the entire paragraph in this connection because the thought is clearly expressed to the effect that the future tells its own story best when it arrives. It is well read all that is said upon the subject. While we have only ten months' actual experience in this case, it nevertheless speaks for itself and the cost of manufacturing and distributing gas, when the eliminations are made, as shown and it is found so near normal, when compared with the past, it gives great weight for the future, and it is very near an average result, and hence, it is regarded by me as the safest guide for the future. It includes the increase in salary for Jansen Haines and excludes rate litigation, salaries general, and has only .30, after eliminating .25 of a cent for "Expense Extra." There is no increase of taxes included beyond the year 1910. It is below the year 1910, one cent per M. C. F., and the average for the five years reduced by the elimination, .85 of a cent, and above the year ending February 28, 1909, 1.30 cents. It is as near a certainty as we can get.

As reduced by me, it can hardly be claimed it was made for the case during its pendency, because it shows a decrease from 1910.

(See further on this subject hereafter.)

242 *Depreciation on Future Value.*

XXVI.

There is, however, one other question that it is necessary to determine with reference to the future increase in the value of the plant, for the purpose of calculating the rate of return to which the Complainant is entitled. It must be borne in mind that when it comes to the end of the year 1912, the Complainant is paid at the rate of 6.67 cents per M. C. F. for the depreciation of the value of the plant for the year 1911, out of the profits from the manufacture and distribution of gas. At the estimated amount of gas as hereinbefore calculated for the year ending December 31, 1911, which is 557,778,625 C. F. and makes $37,303.80. This pays him for depreciation for the year, but the value of the plant is reduced to that extent on which he is entitled to have reckoned his rate of return for the next year. The same is true for the year 1912, and when we calculate the increase in the capital by reason of additions and improvements and

add it to the original value, in order to get the true capital on which to reckon the net income for the future, we must not forget that the depreciation must be deducted, otherwise the Complainant would be obtaining a return on what has been paid him.

In this connection attention is called to what has been said upon the subject of depreciation in Knoxville vs. Knoxville Water Co., Supra., on pages 13 and 14, as follows:

"A water plant, with all its additions, begins to depreciate in value from the moment of its use. Before coming to the question of profit at all, the company is entitled to earn a sufficient sum annually to provide not only for current repairs, but for making good
243 depreciation and replacing the parts of the property when they come to the end of their life. The company is not bound to see its property gradually waste, without making provision out of its earnings for its replacement. It is entitled to see that from the earnings the value of the property invested is kept unimpaired so that at the end of any given term of years, the original investment remains as it was at the beginning. It is not only the right of the company to make such a provision, but it is its duty to its bond and stockholders, and in the case of a public service corporation, at least, its plain duty to the public."

While much more is said on this subject in the opinion, this is all that is necessary to quote, in order to show that in providing for depreciation, it is fully sanctioned by the Supreme Court of the United States as voiced in this opinion, and that it has not only the sanction of the court, but is based upon sound reason. It applies both to the future in estimating the cost of manufacturing and distributing gas, and determining the future value of extensions and improvements, as well as to the past in determining the value of the plant. It must be taken into account in all reckonings both in the past as well as in the future.

The reckonings therein for the future are made hereafter under the next division of this report, not only upon the future cost of gas, but also on the future investment and depreciation thereon.

The following extract from the case of The Railroad Commissioners of Louisiana vs. The Cumberland Telephone & Telegraph Co., 212 U. S. 414, has been cited by Counsel for Defendants in this case—to wit:

"If the onus rested upon the commission to show these facts, it is evident that the obligation has not been fulfilled; but it is just here that the difficulty lies. It was obligatory upon the Complainant to show that no part of the money raised to pay for depreciation was added to capital, upon which a return was to be made to stockholders in the way of dividends for the future. It cannot be left to
244 conjecture, but the burden rests with the Complainant to show it. It certainly was not proper for the Complainant to take the money or any portion of it, which it received as a result of the rates under which it was operating, and so to use it, or any part of it, as to permit the company to add it to its capital account, upon which it was paying dividends to shareholders."

Justice Peckham proceeds:

"If that were allowed, it would be collecting money to pay for depreciation of the property, and, having collected it, to use it another way, upon which the Complainant would obtain a return and distribute it to its stockholders. That it was right to raise more money to pay for depreciation than was actually disbursed for the particular year there can be no doubt, for a reserve is necessary in any business of this kind, and so it might accumulate; but to raise more than money enough for the purpose and place the balance to the credit of capital upon which to pay dividends, cannot be proper treatment. The court below said it was impossible to find out from the books how much of this had been done, and it treated the fact as one to be explained by the commission, and not by the Complainant. In other words, while this fact was a material one, the onus was placed upon the commission, and not the complainant, to show it. We think, on the contrary, that the obligation was upon the complainant. Now, although the books, it is said, does not show how much money collected for depreciation has been, in fact, used to increase the capital of the complainant, upon which dividends were paid to stockholders, yet still, even if the books do not show accurately, or even at all, what disposition was made of these moneys, at any rate the officers of the complainant must be able to make up some reasonable approximation of the amount, even if it be impossible to state it with entire accuracy; and this duty rests with the complainant, in order that it may discharge the duty devolving upon it to prove that the rates were not unreasonably high under order No. 488, or in other words, that they were unreasonably low under order No. 552. It may be that the sum, if any, thus used, was not enough to affect the claim that the rates under discussion were un-
245 reasonably low. The evidence is sufficient to show clearly that which complainant is under obligation to show."

There is nothing in this case to which this extract applies, unless it is the Wisconsin Plan. Depreciation is only used for three purposes in this case.

1. To reduce the Base Value of the present value of the plant.
2. To determine the future cost of gas.
3. To determine the future value of the plant after the year 1911.

246 *Citations and Legal Deductions.*

XXVII.

In presenting my views with reference to what the final decree in this case should be, it will serve no good purpose to review the numerous authorities, which counsel for both Complainant and Defendants have cited, in the extensive briefs submitted. But it is necessary for me to state the principles of the law which I regard as applicable thereto, in the language which the court have used in enunciating them.

In the case of Wilcox vs. Consolidated Gas Co., 212 U. S., page 41, the Court uses the following language:

"The question arising is as to the validity of the acts limiting the rates for gas to the prices therein stated. The rule by which to determine the question is pretty well established in this court. The rates must be plainly unreasonable to the extent that their enforcement would be equivalent to the taking of property for public use without such compensation as, under the circumstances is just both to the owner and the public. There must be a fair return upon the reasonable value of the property at the time it is being used for the public. San Diego Land & Town Co. vs. National City, 174 U. S., 739; San Diego Land & Town Co., vs. Jasper, 189 U. S., 439.

"Many of the cases are cited in Knoxville vs. Knoxville Water Co., just decided. The case must be a clear one before the courts ought to be asked to interfere with State legislation upon the subject of rates, especially before there has been any actual experience of the practical result of such rates. In this case the rates have not been enforced as yet, because the bill herein was filed and an injunction obtained restraining their enforcement, before they came into active operation."

247 This is true of the case at bar. The rates have not been put in force, because an injunction was issued restraining the enforcement, before they came into actual operation. The only difference in this respect, is that in this case, it is a city ordinance instead of a legislative act, but that makes no difference. In Knoxville vs. Knoxville Water Co., Supra., page 8, the Court says:

"It happens that in this particular case it is not an act of the legislature that is attacked, but an ordinance of municipality. Nevertheless the function of rate making is purely legislative in its character, and this is true, whether it is exercised directly by the legislature itself, or by some subordinate or administrative body to whom the power of fixing rates has been delegated. The completed act derives its authority from the legislature, and must be regarded as an exercise of legislative power."

The ordinance in question being a legislative act, the same presumption exists in its favor, as though it was the act of the legislature itself, although the strength of the presumption may not be so great as it would be had the council given the Complainant a hearing on the question of fact, necessarily involved, in determining what would be a reasonable rate of return, while the Complainant's plant was being used for the public. Nevertheless, the rule as stated by Judge Sanborne in Shepard vs. Northern Pacific Ry. Co., 184 Federal Report, page 807, is still applicable, which is as follows:

"When a rate is made under legislative authority, the legal presumption is that it is fair and reasonable, and the proof to the contrary must be clear, especially in cases in which the rates challenged have never been in operation, and the injunction sought while they are yet speculative."

The principles enunciated have been heretofore stated in this report, but because they are especially applicable to the future
248 results, that may reasonably be expected, from the operation of the plant under the provisions of the ordinance in question

in this case, and it is well to have them clearly in view while considering the questions that are yet to be determined.

There is no question of the value of the franchise in this case. The Complainant is required to pay 2 per cent upon its gross receipts for the privilege of using the streets for its mains in which to convey gas to its consumers. The franchise in this case is a liability instead of an asset and cuts no figure in the value of the plant. The only part of the plant that may be regarded intangible is what is termed the "Going Value," and it is what enables the plant to earn such an income, as will in any sense of the word, justify the exercise of the power to fix rates by the council. With its business yet to develop, a very different question would be involved.

Then again, in fixing the rate of return, it is well enough to call attention to what has been said in the case of Wilcox vs. Consolidated Gas Co., Supra., page 48, which has been more fully quoted heretofore, under the head of "Rate of Return," as follows:

"One who invests his money in a business of a somewhat hazardous character is very properly held to have the right to a larger return, without legislative interference, than can be obtained from government bonds or other perfectly safe security."

There are many hazards in every manufacturing plant which insurance will not cover, and will not compensate, and hence, in fixing the Rate of Return at 8 per cent, it was intended thereby to cover all hazards, over and above such insurance, as the details of the cost of manufacturing and distributing gas show has been carried by the company and hence, in reckoning such cost, nothing additional has been included. Whether the rate will afford a sufficient compensation therefor the future alone can reveal.

249 Then again, it is clear that the Complainant is entitled to the benefit of the legitimate increase in value of its property. In the Consolidated Gas Case on page 52, the Supreme Court very clearly enunciates the rule as follows:

"And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property which legally enters into the consideration of the question of rates has increased in value since it was acquired, the company is entitled to the benefit of such increase. This is at any rate, the general rule. We do not say there may not possibly be an exception to it when the property may have increased so enormously in value as to render a rule permitting a reasonable return upon such increased value unjust to the public."

In Knoxville vs. Knoxville Water Co., Supra, page 17, it is said that:

"It cannot be doubted that in a clear case of confiscation it is the right and duty of the court to annul the law. Thus in Reagan vs. Farmers Loan & Trust Co., 154 U. S., 362, where the property was worth more than its capitalization and upon the admitted facts the rates prescribed would not pay one-half the interest on the bonded debt. In Covington & Turnpike vs. Sameford, 164 U. S. 578, where the rates prescribed would not even pay operating expenses; in Smyth vs. Ames, 169 U. S. 466, where the rates prescribed left sub-

stantially nothing over operating expenses and cost of service; and in Ex Parte Young Supra, where on the aspect of the case which was before the court, it was not disputed that the rates prescribed were in fact confiscatory, injunctions were severally sustained. But *in* the case before us is not a case of this kind. Upon any aspect of the evidence the company is certain to obtain a substantial net revenue under the operation of the ordinance. The net income in argument would be substantially 6 per cent or 4 per cent for depreciation. We cannot know clearly that the revenue would not much exceed that return.

"We do not feel called upon to determine whether a dem-
250 onstrated reduction of income to that point would or would not amount to confiscation. Where a case rests as it does here, not upon observation of the actual operation under the ordinance, but upon speculations as to its effect, based upon the operations of a prior fiscal year, we will not guess whether the substantial return certain to be earned would lack something of the return which would save the effect- of the ordinance from confiscation. It is enough that the whole case leaves us in doubt. The valuation of the property was an estimate and is greatly disputed. The expense account was not agreed upon. The ordinance had not actually been put into operation, the inferences were based upon the preceding year, and conclusion of the court below rested upon that most unsatisfactory evidence, the testimony of expert witnesses employed by the parties. The city authorities acted in good faith and they tried, without success, to obtain from the company a statement of its property, capitalization and earnings."

From the foregoing authorities and others cited by counsel for the parties to this action, may be deduced the following principles of law applicable to the case at bar in its final determination:

1. That private property cannot be taken for public use without just compensation being made therefor.

2. That this rule of law applies with equal force to the right of the owner to use and enjoy his property, as to the property itself and that it cannot be taken for public use either in whole or in part without just compensation.

3. That when either an individual or a corporation invest- money in a public utility; that the legislature of a state where it is situated have the power and right to prescribe the rates which it shall charge its customers for the services rendered or the commodity furnished them.

4. That the legislature may delegate this power to such subordinate bodies as it may deem proper and right, should be invested with the exercise of such power.

5. That the only limitation upon the exercise of this power
251 is, that the rates which may be prescribed, shall be such as will afford to the owners of such public utility a reasonable return on the value of the property while it is being used for the public.

6. That the Rate of Return to which such public utility may be entitled, is not a question of law, but of fact, and that the rate to

which it is entitled shall be determined with reference to the locality where it is situated, and the return usually expected and received therein upon similar investments, and the hazards of such business.

7. The rates prescribed by the ordinance in question in this case are presumed to be adequate, but this presumption is not conclusive, but may be rebutted by evidence which clearly and satisfactorily proves that such rates will not afford a reasonable return on the value of the plant while it is being used for the public.

8. The failure of the Council to give the Complainant an opportunity to be heard and a hearing upon the facts necessarily involved in prescribing the rates to be charged for gas, before the enactment of the ordinance, tends to weaken the force of the presumption in favor of their correctness, but does not relieve the Complainant of the necessity of clearly and satisfactorily showing that the rates prescribed by the ordinance in question are so low that they will not afford a reasonable return on the value of the property, and are therefore confiscatory. The Railroad Commission of Louisiana vs. The Cumberland Telephone & Telegraph Co., 212 U. S. 414.

10. That this action having been brought and a temporary injunction granted restraining the enforcement of the ordinance, without having first tried the effect of the rates therein prescribed, the Complainant must establish by clear and satisfactory evidence that such rates are inadequate and confiscatory, and if upon the whole evidence there remains a reasonable doubt of the correctness
252 of Complainant's contention, then the bill should be dismissed without prejudice to a future action, and Complainant required to try the same before instituting another action.

11. If, however, upon the whole case, there remains no reasonable doubt of the correctness of Complainant's contention that the rates prescribed by the ordinance, will not afford an adequate rate of return, either in whole or in part, then it is entitled to have the injunction made perpetual, and the ordinance annulled as confiscatory.

253 *Probable Future Net Revenue.*

XXVIII.

1910.

1. Total Gross Revenue for the year ending December 31, 1910. (Complainant's Exhibit 23, page 15) (Defendants' Exhibit 30, Exhibit "A" thereto)	$538,493.00
Operating expenses reduced by this report (See No. — of this report Sub. Division No. —) Hagenah	335,082.00
Balance	$203,811.00
Depreciation at 6.67 cents per M. C. F. upon 531,991,000 C. F.	35,483.80
Net revenue for 1910	$168,327.20

This includes Valley Junction and.....	2,400,000	
At 8 per cent is.....	192,000	
45,000 at 8 per cent is.....	3,600	$195,600.00
Deficit		$27,272.80

The Deficit as above figured is upon the idea that the property was worth as much January 1, 1910, as at the close of the year, but that was not the case, because there was added to it during that year in mains, services and meters, the sum of..... $81,500.28 (Schedule 5, Exhibit 30) which would reduce the above deficit at least 6,520.02
And $26,715.13 for other as per Schedule 3 of said Exhibit, which reduces the deficit..... 2,137.20

more. There may be other matters besides this which would reduce the deficit still more, but the Exhibits do not disclose it so that I can be sure of it for that year.

254 **1911.**

The total amount of gas sold during the ten months of the year ending October 31, 1911, as per Complainant's Exhibit 91, is shown to be		450,011,489
Total gas as per Schedule 2, Defendants' Exhibit 30 for November, 1910.....	50,214,035	
Also for December, 1910.....	52,577,873	
Estimated increase 4.84 per cent of above.	4,975,132	
		107,767,040
Total		557,778,529
Page 7, Defendants' Exhibit, shows that the amount of gas sold Valley Junction in 1910 was 6,889,100 C. F., and for this year it is estimated at.....		7,000,000
Des Moines gas.....		550,778,529
After eliminating the charges to operating expenses the cost is shown to have been at the rate of	61.73	
Add depreciation	6.67	
Total cost	68.40	
Net revenue per M. C. F. for 90 cent gas.....	21.60	$118,968.16
Eight per cent of $2,400,000.....		192,000.00
Deficit		$73,031.84

Valley Junction.

Total receipts at $1.50 on 7,000,000 is		$10,500.00
Eight per cent on $45,000	$3,600.00	
Cost of gas, including depreciation, 68.40	4,788.00	
		8,388.00
Net revenue		$2,112.00

This amount would be the profit over and above cost, including depreciation, and, if it should be considered in favor of De-
255 fendants, it would reduce the deficit for 1911 to that extent, but it does not appear whether or not any additional expense was incurred in Valley Junction which should reduce it or not. At least, the taxes would, but what they are is not shown.

The additional investments for the estimated gains in the output of gas over 1910 for mains, house and lamp services at $2 per

M. C. F. is	$51,572.00
Depreciation on 557,778,529 is	37,203.20
Balance	14,368.80
To which add	2,400,000.00
Value of plant for 1912	$2,414,368.80

1912.

Total sale of gas as estimated for the year 1911 as last shown	557,778,524
Estimated gain over 1911	29,221,476
Total for the year	587,000,000
Deduct Valley Junction	7,000,000
Balance	580,000,000
At the same net profit for this year as for the year 1911, which is 21.60 per M. C. F.	$125,280.00
8 per cent of $2,414,368.80, value of the plant January 1, 1912	193,149.50
Deficit	$67,869.50
Same profit this year as last shown for Valley Junction	2,112.00
At the average rate, 62.58 per M. C. F. and 6.67 depreciation, gives us 69.75, and net profit per M. C. F. of 20.75 on 90 cent gas	120,350.00
Deficit	$72,799.00

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At the lowest for the year ending February 28, 1909	59.73	
Adding .70 for increased taxes	.70	
Total	60.43	
Depreciation	6.67	
Total cost of gas	67.10	
Net revenue per M. C. F on 90 cent gas	22.90	
And total net revenue		$132,820.00
Deficit		60,329.50
At the highest for the year 1910	62.98	
Adding depreciation, makes	69.65	
And net revenue of 20.35 per M. C. F. and total		118,230.00
Deficit		$75,119.50

If the Court regards the profit in Valley Junction should be considered, then the same would reduce it to the amount of its net profits as aforesaid, which is as near as I can reach them.

New Valuation.

At the rate of increase for mains, services and meters for the year 1913	$58,443.00
Depreciation on $580,000 M. C. F. at 6.67 per M. C. F.	38,686.00
Balance	$19,757.00
At this rate of increase the company would be compelled to expend for the new holder at least	100,000.00
Total	$119,757.00
Add capital for 1912	2,414,368.80
Value of plant for 1913	2,534,125.80
8 per cent upon this amount	202,730.06

257 1913.

Total gas sold for the year 1912 as estimated	580,000,000
Estimated increase for new customers	32,000,000
Total	612,000,000
Deduct Valley Junction	7,000,000
Des Moines gas	605,000,000

Net revenue for the year at same rate as for 1911—21.60 per M. C. F.	$130,680.00
8 per cent on value for this year	202,730.06
Deficit	72,050.00
Net revenue at average, 20.75	125,537.50
Deficit	77,192.56
Net revenue at highest price, 20.35	123,117.50
Deficit	79,612.56
Net revenue at the lowest as aforesaid, 22.90	138,545.00
Deficit	64,185.06
During this year, early in the year they would be compelled to have the new holder ready and it would add with other improvements necessary, to the value of the plant	$150,000.00
For mains and services for this year on the estimate of 2.00 per M. C. F. of gain over preceding year	64,000.00
Depreciation at 6.67 on 605,000 M. C. F.	$214,000.00
Deducted	40,335.00
Balance addition to value of plant	173,665.00
Add capital for 1913	2,534,125.80
Total	$2,707,790.80
8 per cent thereon would give	$216,623.26

258 1914.

Total gas for the year 1913 as hereinbefore shown	612,000,000
Gain for the year 1914	33,000,000
Total amount	645,000,000
Deduct Valley Junction	7,000,000
Total Des Moines gas	638,000,000
Net revenue at 1911, costs 21.60	$137,808.00
8 per cent on value for this year, $2,707,790.80	216,623.20
Deficit	$78,815.20
At highest cost of gas for year 1910, 20.35, total net revenue	129,833.00
Deficit	86,790.20

At the lowest cost of gas for the year ending February 28, 1909, net 22.90 per M. C. F.	146,102.00
Deficit	70,521.20
At the average for the five years net revenue, 20.75 per M. C. F.	132,385.00
Deficit	84,238.00

It is not necessary to pursue these estimates further. They speak for themselves, and the price for gas at the lowest, highest and average for the year 1911 are each calculated, and they all show a deficit. The calculations for future improvements are based upon the evidence of all the engineers, to which reference has already been made, and they are imperative. It seems that this struck the company at a period when larger extensions were a necessity to meet the demands of the increasing business.

The foregoing calculations, after the year 1911, are made upon the lowest cost of gas for any year prior to the year 1911, which year ended February 28, 1909, which was 59.73c per M. C. F., with the increase in taxes .70 added, making 60.43c per M. C. F., and adding depreciation, 6.67c per M. C. F., makes 67.10c total,
259 leaving a net profit of 22.90c, but if the Court holds that the Complainant is entitled to the $10,000 for the salaries of the officers of the company, it would increase the amount 1.88c per M. C. F., making 68.98c with a net revenue per M. C. F. of 21.02c and the deficit accordingly. If rate regulation is added, in my judgment, 2c per M. C. F. for five or six years would meet that amount, and this would reduce the net revenue to 19.02c per M. C. F. and increase the deficit.

2. The average for the five years prior to 1911 is 63.34, from which .50 of a cent was deducted for salaries general, and .26 on account of expense extra, making 62.58c, and this does not include rate regulation, but if this is allowed, the average would be increased to 65.34c per M. C. F., and to add depreciation, 6.67c, it would be 72.01c per M. C. F., which taken from 90 cents would leave only 17.99c per M. C. F. and increase net deficit.

3. The year 1910 at 62.98 of salaries general should be allowed it would increase this amount 1.88c per M. C. F. total $10,000 increase the deficit to that extent and rate regulation at 2 cents per M. C. F. would increase the deficit about $10,000.

4. For the year 1911 we have used the cost per M. C. F., which as eliminated makes 61.73, but add salaries general it would increase this amount about 1.62 per M. C. F. (On this account $1,250.00 should be deducted from $10,000, because the manager, Jansen Haines, became president without increase of salary, and hence half the year this amount would not be paid.) To add rate regulation would make 2 cents per M. C. F. more, and contribution to Greater Des Moines Committee .25 of a cent. The balance of the charity allowance is included in the 61.73. This would increase the deficit for 1911 accordingly. This totals the cost of gas to 65.60 cents and

depreciation added, makes 72.27 cents, and net revenue 17.73 cents per M. C. F.

260 The foregoing calculations are made to aid the Court should it be determined that any or all of them should be included in future calculations with reference to the cost of gas, all of which, in my judgment, can be determined from this report.

5. The rate of insurance against loss by accidents is about 1.42 per M. C. F., and the operating expenses show about .38c for past damage claims, which in round numbers 1.04 cents per M. C. F., and this included as part of hazards in fixing the rate of return, but should the rate of return be reduced, then this ought to be included in the cost of gas.

6. In relation to the contribution to the Greater Des Moines Committee, upon examination of Defendants' Exhibit 27, page 181, I find there was a contract of subscription to that committee to pay $2,000 per year for three years, approved by the Board of Directors, September 13, 1909, and hence it runs into 1911, and perhaps included, but there is no obligation beyond that three years' approval, and no obligation to pay it and thereafter at least, it should not be allowed in the future cost of gas.

Stockholders' and Directors' Record.

261 In this connection, it may aid the Court to give the pages of Defendants' Exhibit No. 27, which shows the increase in wages of the President and other employés of the Complainant. This Exhibit, together with Exhibit No. 28, of Defendants, contains the records of the Stockholders and Directors' meetings of the Complainant Company from and including July 24, 1911, and shows the election of Jansen Haines, President, July 10, 1911. Defendants' Exhibit 28 contains the minutes of meetings not yet entered in the book from April 24, 1911, to July 24, 1911.

The various meetings of the Board of Directors showing increase in wages may be found on page 236 of date February 11, 1911; page 208, April 5, 1910, page 200, February 28, 1910; page 195, December 27, 1909; page 155, January 20, 1909; (Scale of wages for classified labor, page 140, June 17, 1908); increase, January 1, 1908, page 135; page 84, February 20, 1907; the fixing of "salaries general" will be found on page 185, October 20, 1909. No salaries to these officers totaling $10,000 per year until this date, and are the salaries rejected under that head in estimating cost of gas. This exhibit shows the approval of extensions, improvements and betterments, and the estimated cost thereof since the organization of Complainant Company. It also shows the approval of the items or many of them under the head "Expense Extra," of which the amount paid the Greater Des Moines Committee of $2,225 was disallowed. This was authorized September 13, 1909, for three years at $2,000 per year (Page 181). This exhibit also shows issuance of bonds on the extensions and improvements from March 1, 1906, to December 31, 1910, of $472,993.63, or the amount of $60,000 in addition to those reported by experts. This was done January 23, 1911.

262 *Final Hearing.*

Copies of the foregoing report were furnished Counsel for Complainant and Defendants on the 10th day of March, and thereafter pursuant to notice, on the 1st day of April, 1912, at the United States Court Room, in Des Moines, Iowa, the Special Master's Court again convened and said *court* came on for hearing upon the preliminary report, Complainant appearing by its solicitors, N. T. Guernsey and W. L. Read, and Defendants by H. W. Byers and R. O. Brennan, and the first and second days of April aforesaid were occupied in the final argument of the case, and after close of the argument duly submitted for final decision.

During the session aforesaid, Counsel for Defendants submitted requests for additional findings, which it was agreed in open session by Counsel for both parties, should be submitted and the answers thereto filed as of date of the filing of this report, should it be necessary for any reason to defer the answers thereto, to a later date.

During the final argument the decision and opinion in the case of the Cedar Rapids Gas Company vs. Cedar Rapids et al., by the Supreme Court of the United States on the question of "Going Value" was fully argued by Counsel for Complainant and Defendants, as well as other matters in connection with the preliminary report.

263 *Conclusion.*

The foregoing results were worked out from the evidence in the order in which they appear in the report, and without any thought that in the end that the final conclusion would be so close to the border line between Complainant and the Defendants under the decisions of the Supreme Court of the United States, but the facts found and determined therein, in my judgment, are fully sustained by the evidence. There is so much doubt in one item, in the Base Values, that is included in the item No. 18 for $21,057, that the same is reduced to $20,657, and the value of the physical property is made in round numbers $2,100,000, and Going Value at $300,000, making $2,400,000, January 1, 1911, upon which the Rate of Return is reckoned. The deduction of $140,000 on account of taking up and replacing mains where none existed when the mains were laid is fully stated under that head.

Counsel for Defendants, in argument, claim that the Rate of Return allowed in the Des Moines Case could not be considered as evidence, because the evidence in that case was not before me, but that would be just as true with reference to the other rates that are lower, urged on my consideration and, strictly, none of them can be considered as evidence, but only comparison in connection with the evidence in the case, and what the courts have to say with reference to them. The future increase in the value of the property by reason of extensions and improvements is fully stated in the report already.

The operating expenses are left as found, except upon the matters

of the salaries of the General Officers, $10,000 per year, the
264 Regulation of Rates, and subscription to the Greater Des Moines Committee. Should these be included it would add about 4.25 cents per M. C. F. to the cost of gas. And should the Court conclude that all of the casualty insurance should be added it would make 1.04 cents more.

There is an error on page 73 of this report for the year 1897 in which the gain should be 7,817 C. F. instead of 17,817, which should reduce the total gains for the fifteen years to 470,891, and increase the general average for the fifteen years and ten years, but as only the average for the five years was used in calculations for the increase in mains, services and meters, it makes no difference in relation to them.

It is easy enough to determine from the books what has been the average cost of gas during the five years preceding 1911, and what it cost during the year ending February 28, 1909, and for the year ending December 31, 1910, as well as for the first ten months of the year 1911, but, to derive therefrom the future cost of gas is a very perplexing problem, and the more I have studied it, the more difficult it becomes. These years do not furnish the same results at any time, and which, if any, should be accepted. Now, taking the year 1910, it is worthy of note that while during the four years preceding it, there was a steady decrease in the manufacturing cost, on the other hand, there was quite an increase in the cost of distribution per M. C. F., when in view of the increased output, the reverse should have been the case. It is true that the repairs account for a part of it, because they were above the average. Repairs for that year, 1910, were 7.42 cents, and substitute the average in 1910, and we have reduced the cost to 61.05 per M. C. F., but for the first ten months of the year 1911 we have 61.73 cents per M. C. F. and the repairs only slightly above the five-year average, and yet the cost of
265 gas increased, when the manufacturing cost was reduced from 29.60 to 29.33. Why should the increase in sales cause such a difference? A part can be accounted for in the increase of wages. These conditions lead me to believe that with economy and care, the cost may be reduced below 60 cents, as it was in the year ending February 28, 1909, without detriment to the service. At least, the future cost of gas is not clear and satisfactory to me. It is true that in this matter we are entering the realm of prophecy, and none of us have that gift. What a trial under the present rates would produce is not before us, and cannot be determined until it is so tried. Only the past throws any light upon it.

On the question of the effect of reduction upon the increased sales of gas to existing customers, the Supreme Court of the United States in the Consolidated Gas Co. case, lay a good deal of stress. In the case of the R. R. Commissioners of Louisiana vs. The Cumberland Telegraph & Telephone Co., 212 U. S., page 427, in commenting upon an increase of business, Justice Peckham says:

"So, also, in furnishing gas at reduced rates the reduction in the rate would very probably result in an increased consumption, not only in increased demand for more consumers, but also increased

consumption by consumers already existing, and the increased cost in furnishing gas would be nothing like in proportion to the increased consumption. In these cases increased profits might be the result of the decreased rates."

This question was not before the court in that case, but it was in the Consolidated Gas Case and in it the same Justice says:

"And again, increased consumption at the lower rate might result in increased earnings, as the cost of furnishing the gas would not increase in proportion to the increased amount of gas furnished."

266 That an increase of sales to existing customers would result in greater profits is perfectly true. It would practically double the profits per M. C. F. on the increase. On new customers it ought to do the same, only it would at the same time, cause additional value to be added to the plant, however, it would increase the profits materially in the final result, and the extracts show the emphasis placed by the Court upon increased sales. It was one of the matters that caused that case to be dismissed without prejudice with the admonition to give the rates a trial.

On the other hand, should a like order be made in this case, it might result in a loss to the Complainant of from two to three hundred thousand dollars in the next five years, which does not look like a "square deal" nor comport with my ideas of justice, but that was also true in the Consolidated Gas Co. case, and in that case a loss of from half a million to a million dollars might result therefrom annually. It is one of the hardships that may result from rate making by a tribunal charged with that power and duty. It is very likely to result under the chaotic conditions of our present laws on this subject. There is no method prescribed for its exercise, and an ex parte investigation rarely ever results fairly to the parties, but no matter how it may be exercised nevertheless, the burden of proving by clear and satisfactory evidence rests upon the Complainant, and it must be shown beyond a reasonable doubt upon the whole case that the rates are confiscatory, before the courts will interfere and so declare them. It may be that in the conclusion of law that this is stated too strongly, but the rule is stated in the Consolidated Gas Company case, in the following language on page 54:

"Upon a careful consideration of the case before us, we are of the opinion that the Complainant has failed to sustain the burden cast upon it of showing beyond any just and fair doubt that the

267 act of the legislature of the State of New York are in fact confiscatory."

To my mind there is no difference between a "just and fair doubt" and a reasonable doubt. The latter expression was used by me because it is the qualification usually applied in designating it, but had the quotation been before me when the legal conclusions were drafted it would have been used.

In my judgment the words "in whole or part" therein are correctly employed. There can be no middle ground in taking the use of private property for public use.

If that were not true then the private owner would not receive a just compensation therefor.

While reckoning under the valuations at the past rates will show a deficit, it must not be forgotten that there are certain elements therein that have not been demonstrated. It is not necessary to enter upon these calculations to explain them. They speak for themselves. It is true that only an ex parte investigation was had by the council, notwithstanding the Complainant requested a hearing and, hence the weight of presumption in favor of the rates are weakened. What I mean by a hearing is that both sides should be heard and when such a hearing is had, even if it did not operate as an estoppel, it would give great weight to the result unless arbitrarily disregarded by the council. But in its absence the burden remains on the Complainant and the evidence must be clear and satisfactory.

It is evident, also, that the Company had reached a point where large extensions and improvements must be made, which will at least, in the next five years, total $500,000, and add that amount, less depreciation, to its value, increasing it something like $300,000. Should the Court hold that the $140,000 for taking up and replacing

mains [paving] where none existed at the time the mains
268 were laid, then a decree for the complainant would be imperative, should "Going Value" be included in the basis for a return.

Should the Court hold that "Salaries General" and the contribution to the Greater Des Moines Committee be included in the future cost of gas, then a like result should follow. So, also, would rate regulation require a like result, should it be held a proper matter to be considered, and 2 cents per M. C. F. be allowed therefor.

It is not the intention to change what has been said heretofore of the indication from Schedule 4, Defendants' Exhibit 30, in relation to the increase of the use of gas by existing consumers. The past is of little value either way on this subject. What the Supreme Court have to say on this subject is already given. So far as new customers are concerned, the estimates made are reasonably certain, and these estimates are made with reference to them. None are made with reference to the increase from existing customers.

The future cost of gas has occupied my attention for some time without being able to reach any satisfactory conclusion thereon.

Judicial prophecy is a new role for me. The future tells its own story best when it arrives. I begin to realize in its full force the reason why the Supreme Court of the United States has been so insistent in requiring a trial of the rates, and its wisdom and necessity, because of the perplexing questions that inevitably arise in a close case. The rule of evidence applied thereto has a distinction of its own when applied to the future results where there has been no test of the rates made by actual trial. It must clearly appear that the rates are confiscatory, and there must be no just and fair doubt thereof when applied to the whole case, otherwise there must be a trial of the rates before the Court will interfere and annul the ordinance.

269 The opinion in the recent case of the Cedar Rapids Gas Co. vs. Cedar Rapids, adds additional emphasis thereto. Not only so, but it also renders it extremely doubtful that "Going Value" will be included in the valuation of such a plant as the basis of return, beyond the fact that it is in "successful operation." That would exclude the sum of $300,000 estimated in this case, on the grounds that when the ordinance was enacted, it already possessed a well developed and paying business.

In my judgment, after considering the able and thorough arguments of Counsel, that it is decisive of the question, and holds that "Going Value" should not be considered in determining the basis upon which the Complainant is entitled to have its return reckoned, and feel that it is my duty to so state.

The physical value as hereinbefore determined, is reckoned upon the fact that the plant was in "successful operation" when the ordinance was enacted, otherwise its value would be much less. The "Going Value" is that enhancement which results from a well developed and paying business. This would result in reducing the estimated deficit for each year $24,000, and yield a return to the Complainant of, at least, 6 per cent on $2,100,000.

While this case is close to the border line, I cannot say on the whole case that the evidence beyond any just and fair doubt, satisfies me that the rates will prove confiscatory, should the ordinance be put into effect and an actual test thereof be made.

It is my judgment that the Complainant's bill be dismissed without prejudice, at its cost, as in the case of Wilcox vs. Consolidated Gas Co. Supra.

A supplemental report will be made, setting out the costs. The parties have not furnished me with a statement of the time attendance and mileage of their witnesses.

270 The evidence has been duly certified as hereinbefore set forth, and a list of the Exhibits will hereafter be furnished as soon as possible.

Witness my hand this 4th day of April, 1912.

ROBT. SLOAN,
Special Master in Chancery.

271 *Articles of Incorporation.*

Exhibit "A" to Master's Report.

Know All Men by These Presents, That we, the undersigned, for ourselves, our successors and associates, do hereby form and organize a body corporate for the purpose of pecuniary profit, and for the purpose hereinafter expressed, under and by virtue of the laws of the State of Iowa, and under the provisions of Chapter 1, Title IX, of the Code of Iowa, and for that purpose do hereby adopt, execute and acknowledge the following Articles of Incorporation.

Article I.

The name of this corporation shall be Des Moines Gas Company.

The principal place for the transaction of its business shall be at Des Moines, Polk County, Iowa, with the right to establish and maintain branch offices at such other points as the Board of Directors of said corporation may from time to time determine.

Article II.

The general nature of the business to be transacted by said corporation shall be to own, operate and maintain gas plants in the city of Des Moines, Iowa, and in any other place or places in the State of Iowa, and to construct and erect all buildings and improvements of every kind and nature necessary to conduct and carry on the gas business, and to lay and maintain gas pipes and mains, and to erect and maintain gas posts and fixtures, and to manufacture gas and to furnish the same with heat, light and power or any
272 of them from said plant or plants, and to make all necessary and adequate connections with the said pipes and mains for the purpose of distributing said gas to consumers of the same.

And the said corporation shall have the power to buy, own, hold or lease any real estate that may be deemed necessary to the transaction and conduct of its business, and sell or lease any portion of the same from time to time as may be deemed necessary, and shall have power to buy, own, purchase and deal in all kinds of tools, appliances, goods, wares and merchandise, and any and all other material that it may require or deem necessary in the transaction of its business, with the right to sell and dispose of any portion of the same, to make and execute any and all necessary contract or contracts with any municipality or municipalities, individuals, firms or corporations with relation to the furnishing of gas for any purpose whatever.

The said corporation shall also have power to buy, purchase and own any franchise or franchises from any other person, firm or corporation, granted to such person, firm or corporation for the purpose of operating gas plants or lay- down and locating gas pipes and mains.

And the said corporation especially shall have the power to buy, purchase and own all the property, real, personal or mixed, and all the rights, franchises, licenses and privileges heretofore granted or held by the Capital City Gas Light Company and to carry out and execute, all contracts heretofore made by said company.

The said corporation shall have power to do every act necessary to operate and maintain gas plants for the purpose of furnishing light, heat, power or fuel in the city of Des Moines, Iowa, and any other place or places as the Board of Directors may from time to time determine.

273 The said corporation shall also have power to issue its notes, bonds, or other evidence of debt, and to secure the same, or any part thereof, by a mortgage or deed of trust upon any

or all of its real or personal property, and upon all of its franchises, rights, licences and privileges, and upon all or any portion of its gas pipes or mains, and all machinery, appliances, material and every article of property that may be owned by it, together with all franchises obtained by it from any municipality or municipalities.

And the said corporation shall also have power to buy, own, purchase and sell any stock of any other corporation that its Board of Directors may determine, and shall have all powers given by law to corporations for pecuniary profit necessary for the proper and legitimate conduct of its business.

Article III.

The amount of the authorized capital stock of said corporation shall be two million two hundred and fifty thousand dollars ($2,250,000), divided into twenty-two thousand five hundred (22,500) shares, of the par value of one hundred dollars ($100) each.

Whatever of said stock shall be subscribed, the same shall be paid for at such times and in such manner as the Board of Directors may order and determine.

Article IV.

The time of commencement of said corporation shall be on the first day of March, 1906, and shall continue for a period of twenty (20) years thereafter, with the right of renewal or dissolution thereof, as provided by the statutes of the State of Iowa.

Article V.

The affairs of said corporation shall be conducted by a board of five (5) directors, who shall be elected by the stockholders
274 at each annual meeting thereof, to be held in each year on the first Tuesday in April, and the first annual election of said corporation shall be held on the first Tuesday in April, A. D. 1907, and until the first annual election, or until their successors are chosen, the following named persons shall constitute and be a provisional board of directors, to wit:

Geo. H. Carr, James P. Hewett, Craig T. Wright, F. Corlies Morgan, Rollin Norris.

The board of directors shall elect as the officers of said corporation a president, one or more vice presidents, a secretary, an associated secretary, a treasurer, and an assistant treasurer.

The board shall also have authority to appoint such other managing officers or agents as they may from time to time determine.

At all meetings of the stockholders of said corporation each share of stock shall be entitled to one (1) vote, either in person or by proxy, duly authorized in writing.

Until the first annual election, or until their successors are chosen, the provisional board as herein nominated shall have all the powers

of the regularly elected board of directors of the corporation, and shall, after these articles are recorded and Certificate of Incorporation issued, meet and elect the officers herein defined.

Special meetings of the stockholders of the corporation may be called at any time by the president (or by any one of the vice presidents in case of absence or disability of the president), or upon the written request of the holders of one-third of the capital stock outstanding at the time, on five days' notice to each stockholder, by mail, at his last known post office address, specifying the time, place and object of said special meeting.

275 All vacancies in the membership of the board of directors and all vacancies in the offices of said corporation shall be filled by the board of directors.

Article VI.

The highest amount of indebtedness to which the said corporation shall at any time subject itself shall not exceed one-third of its capital stock.

Article VII.

The private property of the shareholders and members of the corporation shall be exempt from all corporate debts.

Article VIII.

These articles may be amended, repealed, changed or modified at any actual meeting of the stockholders of said corporation or at any special meeting called for that purpose, upon compliance with the statutes of the State of Iowa, in such cases made and provided.

Article IX.

Subject always to the by-laws made by the stockholders, the board of directors may make by-laws, and from time to time may alter, amend or repeal any by-laws; but any by-laws made by the board of directors may be altered or repealed by the stockholders at any annual meeting, or at any special meeting, provided notice of such proposed alteration or repeal be included in the notice of the meeting. In witness whereof the incorporators of the said incorporation have hereunto affixed their respective names this 28th day of February, A. D. 1906.

GEORGE H. CARR.
JAMES P. HEWETT.
CRAIG T. WRIGHT.
F. CORLIES MORGAN.
ROLLIN NORRIS.

276 STATE OF IOWA,
County of Polk, ss:

On this 28th day of February, A. D. 1906, before me, George E. Cromley, a Notary Public in and for said county, personally came Geo. H. Carr, James P. Hewett, Craig T. Wright, F. Corlies Mor-

gan and Rollin Norris, personally to me known to be the identical persons named in and who executed the foregoing Articles of Incorporation, and they severally acknowledge the execution of the same to be their voluntary act and deed for the purposes therein expressed.

In witness whereof, I have hereunto set my hand and affixed my official seal at Des Moines, in the State of Iowa, on the day and year above written.

[SEAL.]

GEO. E. CROMLEY,
Notary Public in and for the County of Polk, State of Iowa.

POLK COUNTY, *Iowa:*

Filed for record February 28, 1906, at 12:05 o'clock P. M., and recorded in book 18, page —.

MRS. FRANK W. DODSON, *Recorder.*

(STATE OF IOWA), *ss:*

Filed for record in the office of the Secretary of State February 28th, A. D. 1906, and recorded in book 1-4, page 95.

W. B. MARTIN,
Secretary of State.
D. A. HITES, *Deputy.*

Proof of publication filed May 12, 1906.

277 EXHIBIT "B" TO MASTER'S REPORT.

Ordinance No. 1767.

An Ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the city in supplying or distributing such gas, and prescribing penalties for a violation thereof.

Be It Ordained by the City Council of Des Moines:

SECTION 1. From and after the first day of January, A. D. 1911, the rate to be charged and collected for gas by any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants, is hereby fixed as follows, to wit: Ninety (90) cents for each thousand cubic feet.

SEC. 2. If any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants, shall reduce the price of gas to its patrons below the price*d* fixed in this ordinance, then any such person, firm or corporation shall not charge any person or persons for gas a price in excess of that which said person, firm or corporation has charged any other person. The pro-

visions of this section shall not be construed to prohibit special contracts for lower rates to large consumers.

SEC. 3. Any person, firm or corporation using the streets, highways, avenues, alleys or public places of said city in supplying or distributing gas shall pay to the City Treasurer for the use of said City of Des Moines, as a license or occupation fee, for each year that the streets, highways, avenues, alleys or public places of
278 said city are used in supplying or distributing gas, beginning January, A. D. 1911, two (2) per cent of the gross receipts for gas sold during such year; the same to be paid semi-annually and within thirty (30) days after the expiration of the preceding six (6) months.

SEC. 4. Any person, firm or corporation supplying or distributing gas to said City of Des Moines or its inhabitants, shall furnish gas of not less than twenty-two (22) candle power.

SEC. 5. Nothing in this ordinance contained shall ever be construed to in any manner recognize any franchise or other rights claimed by any person, firm or corporation to use the streets, highways, alleys, avenues or public places of said city for the purpose of laying or maintaining mains and pipes in supplying or distributing gas to said City or its inhabitants.

SEC. 6. Any person, firm or corporation supplying or distributing gas to said City of Des Moines, or its inhabitants, or any officer, agent, collector or employé of such person, firm or corporation, who shall charge, demand, collect or receive any rate or compensation for gas supplied or distributed to said City of Des Moines, or to any inhabitant thereof, in excess of the rate fixed by this ordinance, or any such person, firm or corporation or officer thereof failing to pay the license fee provided for herein, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine in a sum not exceeding one hundred dollars ($100.00), or by imprisonment in the city jail for a period not exceeding thirty (30) days.

SEC. 7. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SEC. 8. This ordinance being deemed urgent for the immediate preservation of the public peace, health and safety, shall be in
279 full force and effect from and after the first day of January, A. D. 1911, and after its passage and publication as provided by law.

Passed December 27, 1910.

Signed December 27, 1910.

JAMES R. HANNA, *Mayor.*

Attest:

NEAL JONES, *City Clerk.*

I, Neal Jones, City Clerk of the City of Des Moines, hereby certify that the above and foregoing is a true copy of an ordinance passed by the City Council of said City at a meeting held December 27, 1910, signed by the Mayor December 27, 1910, duly recorded and published as provided by law, February 4, 1911.

NEAL JONES, *City Clerk.*

280 EXHIBIT "C" TO MASTER'S REPORT.

An Ordinance to fix the price of illuminating gas, and to prescribe the conditions under which persons and corporations dealing in illuminating gas can occupy and use the streets and alleys of the City of Des Moines.

No. 724, passed May 16, 1895.

Be it Ordained by the City Council of the City of Des Moines:

SECTION 1230. Rates. Section 1. That every person, firm or corporation furnishing to the inhabitants of the City of Des Moines illuminating gas shall be entitled to charge and receive therefor, the following prices and no more, to wit: For illuminating purposes, $1.40; for fuel purposes, $1.10 per thousand cubic feet; with a discount of ten cents per thousand feet if paid on or before the fifteenth day of the month following that in which the gas is furnished. The above prices are for illuminating gas having an illuminating power of not less than twenty-four candle power; gas having less power shall be furnished at a proportionate less rate per candle power.

SEC. 1232. Report to City, Sec. 3. Any person, firm or corporation which is now in possession of the streets or alleys of the City, for the purposes provided in this ordinance, shall be and is hereby required to file a report with the City Clerk on the fifteenth day of January and July of each year, giving the number of thousand feet of gas manufactured and furnished the City or its inhabitants during the previous six months, and the amount per thousand feet received therefor.

In case any such person, firm or corporation shall fail or
281 refuse to file said report as aforesaid then each and every such person, firm or corporation shall be required to pay to the City the sum of $25 per day for each and every day said report is delayed. Any such person, firm or corporation shall be required to furnish all necessary meters free, and shall furnish and lay service pipe to the lot line free, and from the lot line to the meter for not to exceed fifteen cents per foot.

An Ordinance to amend an ordinance heretofore passed 1895, and again passed on the 16th day of May, A. D. 1895, and designated as Ordinance No. 724, and entitled as follows: An ordinance to fix the price of illuminating gas, and to prescribe the conditions under which persons and corporations dealing in illuminating gas can occupy and use the streets and alleys of the City of Des Moines and prescribing the terms of a proposed contract with the Capital City Gas Light Company as to rates for gas and conditions of purchase of said gas plant.

No. 751, passed February 7, 1896.

Be It Ordained by the City Council of the City of Des Moines:

SEC. 1237. Capital City Gas Light Company. Section 1. That said Ordinance No. 724, passed on the 29th day of April, A. D. 1895,

and again passed on the 16th day of May, A. D. 1895, (and more fully described in the caption thereof), be and the same is hereby amended and modified as respects the Capital City Gas Light Company, to the extent hereinafter specified and no further; provided, that this amendment shall be accepted by said Capital City Gas Light Company as hereinafter specified. Unless so accepted, said Ordinance No. 724 shall continue in full force as originally passed.

SEC. 1238. Rates. Sec. 2. From and after January 1, A. D. 1896, the said Capital City Gas Light Company shall be entitled to
282 charge and receive for gas for illuminating, fuel or other purposes, furnished by it to the City of Des Moines or its inhabitants, for the period of fifteen years from and after the 1st day of January, A. D. 1896, prices or rates not to exceed the following: For two years thereafter, to wit: the years 1896 and 1897, $1.30 net per thousand cubic feet; for the next two years, to wit: The years 1898 and 1899, $1.25 net per thousand cubic feet; for the next two years, to wit: 1900 and 1901, $1.20 net per thousand cubic feet; for the next three years, to wit: 1902 and 1904, $1.15 net per thousand cubic feet; for the next year, to wit: 1905, $1.10 net per thousand cubic feet; for the next five years, to wit: The years 1906, 1907, 1908, 1909, and 1910, $1 net per thousand cubic feet. The said Capital City Gas Light Company may add 10c. per thousand cubic feet to each of these prices, but shall be required to discount that sum for payment by or before the fifteenth day of the month following that in which the gas was consumed.

SEC. 1230. Street Lamps. Sec. 3. The City of Des Moines shall pay to the Capital City Gas Light Company, for said term of fifteen years, for such street lamps as said City may use, and that may be furnished by and gas supplied from the Capital City Gas Light Company, as follows: For each lamp until the number shall reach the total of five hundred, $18 per year; after the number of five hundred has been reached, $17 per lamp per year for the total number of lamps so used. The gas so used to be paid for by the City monthly. Five foot burners or their equivalent in illuminating power shall be used in street lamps.

SEC. 1240. Quality. Sec. 4. The Capital City Gas Light Company shall furnish under this ordinance, gas of not less than twenty-two candle power.

SEC. 1241. Purchase. Sec. 5. The said City of Des Moines shall have the right to purchase at the price as hereinafter deter-
283 mined at any time after five years and within fifteen years from January 1, 1896, by giving not less than one year's notice in advance, the Capital City Gas Light Company's property; this right to exist in the City in its corporate capacity, or in the City's trustees or in the City in any other manner by which the privilege of purchasing may, on behalf of the City, be exercised in good faith. To that end, the present value of the Capital City Gas Light Company's plant shall be determined by three appraisers, one of whom shall be chosen by the Capital City Gas Light Company, one shall be nominated jointly by the committee on gas light and lamps of the City Council, and the citizens' special committee, and be confirmed

by the City Council, and the third shall be chosen by the two thus selected. These appraisers shall file a complete inventory of all the property of the gas company, with their findings. The Capital City Gas Light Company shall furnish the City an annual statement in complete detail of expenditures for betterments and repairs, verified by the oaths of its manager and secretary. The City to have the full facilities for verification of the same by experts of its own selection. Replacements and ordinary repairs not to be counted as betterments. The statement to be furnished on or before the 30th day of January in each year, for the year preceding. In the event of purchase by the City, the actual cost of such betterments is to be added to the first appraisement, and no more.

SEC. 1242. Time Limit. Sec. 6.—The provisions of this amendment shall not be taken or construed to in any manner either affirm, recognize or deny any franchise or other rights now claimed by said Capital City Gas Light Company under ordinances heretofore passed, or contract made with said City of Des Moines; and the privileges granted by this ordinance shall absolutely cease at the end of the term of fifteen years for which it specifies rates for gas. This amendment shall not be construed as conferring upon the
284 Capital City Gas Light Company an exclusive right for any period of time, to furnish gas to said City or to private consumers, nor to limit or restrain the city or such private consumers from purchasing gas from any other gas company upon such terms as may be agreed upon or may be fixed by legal authority, nor to limit the City of Des Moines from purchasing from any other company, person or persons, or from at any time constructing gas, electric light or other works that may be adapted to the purpose, either in its own name or through the instrumentality of trustees or in any other manner, for the purpose of lighting its streets, and of supplying the City and its citizens with light, fuel or power.

SEC. 1243. Suits. Sec. 7.—The Capital City Gas Light Company shall dismiss its suit now pending against the City of Des Moines, now pending in the United States Circuit Court for the Southern Division of Iowa, Central Division and shall pay the court costs.

SEC. 1244. Payment to City. Sec. 8.—The Capital City Gas Light Company, as a license fee for each year that it may continue to use the streets of said City in distributing gas beginning January 1, A. D. 1896, shall pay to the City Treasurer, for the use of said City of Des Moines, two per cent of its gross receipts for gas sold during such year; the same to be paid semi-annually and within thirty days after the expiration of the preceding six months.

SEC. 1245. Acceptance. Sec. 9.—This amendment shall not become operative or go into effect unless and until the same shall be accepted in writing by said Capital City Gas Light Company, and such written acceptance shall be filed with the City Clerk of said City within fifteen days after the passage of this ordinance and not afterward; and when so accepted this amendment shall be deemed a contract between said City of Des Moines and said Capital City Gas Light company.

285 SEC. 1246. Large Consumers. Sec. 10.—That if the said Capital City Gas Light Company shall at any time reduce the price of gas to its patrons below the price fixed in the ordinance, then said Capital City Gas Light Company shall be prohibited during the entire term covered by this ordinance from charging any person or persons or patrons of said company for gas, a price in excess of that which said company has charged any other person. This shall not be construed to prohibit special contracts for lower rates to large consumers.

SEC. 1247. Taxes. Sec. 11.—All the provisions, terms and conditions of this ordinance shall apply and be binding upon said Capital City Gas Light Company, its successors or assigns.

Buildings.

					Exhibit No.	Page.
1	A & B	Purifying House	$8,750	R	22	2
1	C	Fire Brick Shed	91	B	21	76
3		Meter and Governor House	7,739	B	21	76
4		Retort and Generator House	5,042	B	21	76
5		Coal Shed and Condenser Room	2,073	B	21	76
6	A & B	Boiler and Engine Room	6,561	B	21	76
6	C	Boiler House Extension	1,114	B	21	76
7		Generator House	13,640	R	22	3
8	A	Coal and Coke Shed	6,862	B	21	76
8	B	Runway	325	B	21	76
10		Shops and Store Room	8,031	B	21	76
11		Barrel Oil Store Room	210	L	20	45
12		Pump House	777	B	21	76
13		Oil Pump House	210	B	21	76
14		Meter House	1,512	B	21	76
15		Stable	1,934	B	21	76
16		Boiler House	764	B	21	76
17		Fire Brick Storage	107	B	21	76
35		Fire Hose House	34	L	20	59
53		Coke Shed	584	L	20	61
54		Coke Rack	74	L	20	63
55		Oil Barrel Storage House	94	L	20	64
		Total	$66,528			

The letter "R" following figures shows Randolph; "B." Baehr; "L," Lea; and following this on the same line is the No. of Complainant's Exhibit and page of the exhibit where the same are found. To get the Base cost new, of Randolph's report, it is necessary to divide the figures given by 120 per cent, as he added to his base figures 20 per cent as his total "Overhead Charges." This is true of the entire report of Randolph, which is Complainant's Exhibit 22. The Base figures, or as Lea calls it—"Net construction cost new."

Buildings.

				Baehr.	Page.	Lea.	Page.	Randolph.	Page.
1	A & B	43	Purifying House	$9,501	76	$9,507	19	$8,750	2
1	C	43	Fire Brick Shed	91	76	124	21	100	2
3		44	Meter and Governor House	7,739	76	7,793	25	7,960	2
4		45	Retort and Generator House	5,042	76	5,050	28	5,400	2
5		46	Coal Shed and Condenser Room	2,073	76	3,009	30	2,350	2
6	A & B	47	Boiler and Engine Room	6,561	76	6,853	32	7,190	3
6		48	Boiler House Extension	1,114	76	1,354	34	1,300	3
7		49	Generator House	13,921	76	15,336	37	13,640	3
8	A	50	Coal and Coke Shed	6,892	76	6,974	39	8,380	3
8	B	51	Runway	325	76	440	40	350	3
10		52	Shops and Store Room	8,031	76	8,221	43	10,620	3
11		53	Barrel Oil Store House	240	76	210	45	550	4
12		54	Pump House	777	76	880	47	850	4
13		55	Oil Pump House	210	76	229	49	250	4
14		56	Meter House	1,512	76	1,576	51	1,720	4
15		57	Stable	1,934	76	2,266	53	2,370	4
16		58	Boiler House	764	76	983	55	1,290	4
17		59	Fire Brick Storage	107	76	132	57	110	5
35		60	Fire Hose House	37	76	34	59	50	5
53		61	Coke Shed	589	76	584	61	1,000	5
54		62	Coke Rack	82	76	74	63	160	5
55		63	Oil Barrel Store House	95	76	94	64	130	5
				$67,607		$71,723		$74,520	

THIS PAGE I
VERTICAL I

Exhibit "E" to Master's Report.

Yard Structures.

	No.		Baehr.	Page.	Lea.	Page.	Randolph.	Page.
18	32	Holder (175 M.)	$30,000	91	$29,870	85	$33,000	8
19	33	Holder (309 M.)	45,800	91	45,699	85	46,000	8
20	34	Holder (1,132 M.)	105,320	91	113,717	86	113,000	8
21	35	Oil Tank (100 M.)	5,824	92	5,944	86	6,700	10
23	36	Oil Tank (16 M.)	1,469	92	1,424	87	1,600	10
22	27	Oil Tank (64 M.)	3,274	92	2,852	86	3,900	10
24 & 5	38	Oil Tank (321 M.)	15,174	92	16,894	87	19,000	11
36	39	Holder Oil Tank	150	92	99	87	140	11
58	40	Holder Oil Tank	488	92	408	87	600	11
60	41	Pipe Coating Rack	61	92	59	87	100	11
			$207,560		$216,966		$224,040	

Randolph'- figures are difficult to verify and I had to compare them and approximate by the items of the other two.

Contents of Buildings.

				Baehr.	Page.	Lea.	Page.	Randolph.	Page.
1	A & B	17	Purifying House	$21,024	78	$22,537	67	$20,100	..
3		18	Meter and Governor House	25,263	79	25,179	67	21,657	6–10
4		19	Retorts, Coal Gas and Benches	9,000	80	10,800	70	17,200	6
4		20	Generator House, Water Gas	14,454	80	13,908	69	16,275	8–12
5		21	Coal Shed and Condenser Room	1,088	81	1,248	70	650	6
6	A & B	22	Boiler and Engine Room	15,147	82	15,551	70	15,510	..
6	C	23	Boiler House and Extension	2,142	83	1,975	71	2,250	6
7		24	Generator House	45,651	84	42,295	71	45,380	6
8	A	25	Coal and Coke Shed	175	85	150	72	194	10
8	B	26	Runway	1,500	85	1,600	72	1,000	7
10		27	Shops and Store Room	1,002	86	1,036	72	1,103	7
12		28	Pump House	1,230	87	1,395	72–3	1,255	7
13		29	Pump House (Oil)	290	88	500	73	286	7
14		30	Meter House	8,996	89	9,455	73	8,240	10
16		31	Boiler House	1,499	90	1,248	73	1,250	..
				$148,461		$148,877		$151,972	

THIS PAGE

EXHIBIT "G" TO MASTER'S REPORT.

Contents of Buildings.

					Exhibit No.	Pages
1	A & B	Pur-fying House	$20,100	R	22	6, 7 & 10
3		Meter House and Governor House	21,657	R	22	(See below)
4		Retort and Coal Gas Benches	9,000	B	21	80
4		Generator House and Water Gas	13,908	L	20	69 & 70
5		Coal Shed and Condenser Room	650	R	22	6
6	A & B	Boiler and Engine Room	15,147	B	21	82
6	C	Boiler House Extension	1,975	L	20	71
7		Generator House	42,295	L	20	71
8	A	Coal and Coke Shed	150	L	20	72
8	B	Runway	1,000	R	22	7
10		Shops and Store Room	1,002	B	21	86
12		Pump House	1,230	B	21	87
13		Oil Pump House	290	B	21	88
14		Meter House	8,240	R	21	89
16		Boiler House	1,248	L	20	73
			$137,892			

The Complainant in a comparative sheet during argument, gives the first item at $20,100, but in verifying the same I find $100 omitted, and the next item at $18,118, but comparing Exhibits 21 and 20, I am satisfied omits several items, and I have supplied by estimate and through Exhibit 21, and make it $21,657, which I regard as nearly right as can be reached; being satisfied he is the lowest. Also examining the items, "Shops and Store Room," this exhibit gives it at "175," which on examination, I find clearly wrong and that the lowest is what I have given. Randolph does not follow the order of the inventory and this has complicated the examination of his exhibit for comparison greatly.

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Exhibit "H" to Master's Report.

Yard Structures.

				Exhibit No.	Page.
18	Holder (175 M)	$29,870	L	20	85
19	Holder (309 M)	45,699	L	20	86
20	Holder (1,132 M)	105,320	B	21	91
21	Oil Tank (100 M)	5,824	B	21	92
22	Oil Tank (64 M)	2,852	L	20	86
23	Oil Tank (16 M)	1,424	L	20	87
24 & 25	Oil Tank (321 M each)	15,174	B	21	92
36	Holder Oil Tank	99	L	20	87
58	Holder Oil Tank	408	L	20	87
60	Pipe Coating Rack	59	L	20	88
	Total	$206,728			

THIS PAGE I

EXHIBIT "I" TO MASTER'S REPORT.

Miscellaneous.

A	Piping, Steam Exhaust, Circulation, Oil, Water and Gas	$5,000	R	22	9
B	Sewer Drain and Yard Mains	18,051	B	22	104 to 107
	Electric Wiring	165	B	21	108
	Outside Apparatus	1,534	B	21	93
	Fire Protection	175	R	22	8
	Wells, Boxes, etc.	2,500	B	22	93 & 94
	Works' Tools	2,120	L	20	74
	Paving	2,140	R	22	5
	Fencing	1,640	R	22	5
	Lumber	67	R	22	84
	Meter Shops' Furniture	401	B	21	111
	Rubbish Kiln	10	L	20	84
	Works' Office Furniture and Main Office Furniture	12,500	R	22	8
	Stable Equipments	11,359	B	21	124
	Guages	250	R	22	..
		$57,912			

Miscellaneous.

			Baehr.	Page.	Lea.	Page.	Randolph.	Page.
A	1	Piping, Steam, Exhaust, Circulation, Oil, Water and Gas	$10,150	96 to 103	$15,840	75 to 80	$5,000	9
B	2	Sewer, Drain, Tar and Yard Mains	18,051	104 to 107	25,354	80 to 83	25,000	9
	3	Electric Wiring	165	108	189	80	350	7
	4	Outside Apparatus	1,534	93	1,774	74 to 84	....	6
	5	Fire Protection	316	110	427	74	175	8
	6	Wells, Boxes, etc	2,915	93–4	3,486	75	2,500	..
	7	Works' Tools	2,500	109	600	74	2,120	11
	8	Paving	2,850	95	2,586	83	2,140	5
	9	Fencing	2,365	94	2,869	84	1,640	5
	10	Lumber	70	94	67	84	....	..
	11	Meter Shop Furniture	401	111	520	84	325	9
	12	Meter Shop Fixtures	3,920	111	....	..	....	..
	13	Rubbish Kiln	21	111	10	84	30	10
	14	Works' Office Furniture and Main Office Furniture	14,015	124	14,000	60	12,500	8
	15	Stable Equipment	11,359	124	....	84	11,358	12
	16	Guages	631	112	863	74	250	..
	16½	Book Records	10,000	....	....	..	....	..
			$81,263		$68,585		$63,388	

Exhibit "K" to Master's Report.

Mains, Services, and Meters—Base Value.

	Baehr Ex. 21.		Lea Ex. 20		Randolph Ex. 22.	
Street Mains	$723,914	113	$752,762	90	....	..
River Pipes	38,500	113	....	..	....	..
Paving Over Mains	272,953	113	277,574	90	....	..
Valves and Drips	5,120	113	5,919	92	....	..
Steam and St. *and* R. R. C.	7,043	113	9,405	92	....	..
	$1,047,530		$1,045,660		$1,023,010	13
House Services	241,410	113	239,350	91	328,039	13
Lamp Services	17,693	113	20,235	91	19,380	13
Paving Over Services	32,917	113	52,984	91	....	..
	$292,020		$312,569		$347,419	
Meters in Use	199,024	113	179,333	93	200,047	13
Meters in Stock	7,448	113	7,309	93	6,603	13
Distribution Tools	5,180	113	5,000	92	5,180	11
	$211,652		$191,642		$211,830	

Randolph necessarily includes in his computation on the mains, the steam and street railroad crossings, valves and drip pots and hence, in comparing them, they should also be included in Lea's and Baehr's calculations, which we have done, in the above figures. The Complainant in argument did not do so.

Distribution System.

			Exhibit No.	
Street Mains, including Paving, Valves, Drips and Steam and Street Railroad Crossings	$1,023,010	R	22	13
House Services	241,410	B	21	113
Lamp Services	17,693	B	21	113
Paving Over Services	32,917	B	21	113 & 93
Meters in Use	179,333	L	20	..
Meters in Stock	6,603	R	22	13
Distribution Tools	5,000	L	20	92
	$1,505,966			

The estimate of Baehr on the services, as a whole, including paving, because only as a whole can it be compared with Randolph's estimate, and it is $20,000 lower than Lea.

THIS PAGE VERTICAL

296 And thereafter to-wit: On the 5th day of April A. D. 1912 there was filed in said Court a Request by the Respondents for Additional Findings which said request is in words and figures as follows, to-wit:

297 In the District Court of the United States, Southern District of Iowa, Central Division.

No. 71-M (C. C.). In Equity.

DES MOINES GAS COMPANY, Complainant,
v.
CITY OF DES MOINES et al., Respondent-.

Request for Additional Findings.

The respondent, the City of Des Moines, respectfully requests the Special Master herein, the Honorable Robert Sloan, to add to the preliminary draft of his report findings upon the following propositions:

First. How much, if any, of the revenue from the sale of gas in the city of Des Moines during the years 1906, 7, 8, 9, and 10, giving the amount for each year, was used by the complainant in payment for replacements and additions to plant and charged to the construction or capital account?

Second. How much, if any, of the revenue from the sale of gas in the city of Des Moines during the years 1906-7-8-9 and 10, giving the amount for each year, was used by the complainant in payment for replacements and additions to plant and charged in and against operating expenses?

Third. What, under the evidence, would have been the probable total increase in sales of gas for the year 1911 with sales being made at the 90¢ rate?

Fourth. What, under the evidence, would be the probable increase in the sales of gas for 1912, sales being made under the 90¢ rate as provided in the ordinance in question in this case?

Fifth. What, under the evidence, would have been the probable
298 increase in the sales of gas to the existing consumers of the complainant company for 1911 if the 90¢ rate ordinance had been put into operation?

Sixth. What, under the evidence, would be the probable increase in the sales of gas to the present consumers of the complainant company for 1912 if the 90¢ rate ordinance had been put into operation?

Seventh. What, under the evidence, would have been the probable increase in the sales of gas through new customers or consumers for the year 1911 if the 90¢ rate had been put into operation?

Eighth. What, under the evidence, would be the probable increase in the sales of gas through new customers or consumers for the year 1912 if the 90¢ rate had been put into operation?

Ninth. How much of the present value of the complainant's plant

is represented by money expended for replacements and additions to plant charged in and against operating expenses and not appearing in the construction or capital account?

(Signed) H. W. BYERS,
R. O. BRENNAN,
Solicitors for Respondent.

Filed April 5, 1912, Wm. C. McArthur by Louis J. Adelman, Deputy.

299 And thereafter to-wit: On the same day April 5th A. D. 1912 there was filed in said cause a Supplemental Report by Robert Slaon, Special Master in response to the Request of the Respondents for Additional Findings which said Supplemental Report is in the words and figures as follows to wit:

300 Filed Apr. 5, 1912. Wm. C. McArthur, Clerk, by Louis J. Adelman, Deputy.

In the District Court of the United States, Southern District of Iowa, Central Division.

71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Supplemental Report in Response to Request of Defendants.

Robert Sloan, Special Master.

At the final argument upon the preliminary report of the Special Master, the Defendants submitted the interrogatories hereto annexed, marked Exhibit "A" and made a part of this report for additional findings, and in response thereto, the following report thereon is herewith submitted.

First. How much, if any, of the revenue from sale of gas in the City of Des Moines, during the years 1906, 7, 8, 9 and 10, 301 giving the amount for each year, was used by the Complainant in payment for replacements and additions to plant and charged to the construction or capital account?

Answer. This question I am unable to answer definitely. It appears that during this period that the Des Moines Gas Company paid the principal on the stock contracts to the amount of $389,000. The interest on stock contracts and upon the bonds was paid as it became due, and bonds were issued by Complainant Company March 1st, 1906. Since that time as stated in Par. 5, Title, Investment, on page 41 of my report [page 48, printed copy], to the amount of $412,000, which is in addition to $285,000 issued March 1st, 1906, and $400,000 January 1st, 1907, to pay the Capital City Gas Light Company bonds existing when Complainant Company

was organized The interest on these bonds has been paid as it accrued. But what particular funds were used, does not appear.

It is evident that liabilities were paid from whatever funds were on hand when they accrued, without regard to the source from which they came. The Profit and Loss account shows that $264,108.78 was taken from Profit and Loss account and charged to Plant and Property, but it is evident that this money went into the treasury, and was used for whatever needed. I presume that whatever was left of the revenue, after paying operating expenses, interest on bonds and stock contracts, the $389,000 principal on stock contracts, was either used in paying for extensions and improvements, or in the working capital. I am unable to give the amount thereof from any data in the reports of the accountants. Profits applicable to interest and dividends could be used by the Complainant Company, in making replacements, extensions and improvements, with the same force and effect, as though borrowed, and its rights in
302 no way affected thereby, as such profits were the legitimate earnings of the company, under the ordinance, under which it was operating until January 1st, 1911, and such has been my judgment throughout the report wherever the question has arisen. However, if I could answer the interrogatory from the evidence more definitely, I would do so.

Second. How much, if any, of the revenue from the sale of gas in the City of Des Moines, during the years 1906, 7, 8, 9 and 10, giving the amount for each year, was used by the Complainant in payment for replacements and additions to plant and charged in and against operating expenses?

Answer. For the year 1908.....	$135.07	
For the year 1909.....	1,957.34	
For the year 1910.....	7,351.92	$9,444.33

(See page 30, Complainant's Exhibit 23, and Schedule 5, page 22, same Exhibit, and pages 1814 and 1843 and 4, Vol. 2 of Record.)

Schedule 5, page 22, Complainant's Exhibit 23, is an adjustment of the revenue of the company, excluding from the operating expenses, these amounts as belonging to plant and property. It reduces the cost of gas for the year ending December 31, 1910, 1.38 cents per M. C. F. and reduces the average for the five years ending December 31, 1910, .41 of a cent as I reckon it, and the deficits reduced accordingly. It is evident, however, that it would reduce the cost of repairs because they must have been charged under that head. In my judgment the adding machine, $623.64, and calculating machine, $225, are chargeable to Plant and Property, rather than to Operating Expenses. (See page 13, Defendants' Exhibit 30.) I am unable to determine whether Complainant's Exhibit 23, includes these under the head of replacements for the year ending December 31, 1910, or not, but they would hardly be included in that term. This adds to the cost of gas about .16 of a cent per M. C. F.

303 Third. In response to Interrogatories Nos. 3 and 4, my report gives my estimate so far as new customers are concerned, but, beyond that, there is no evidence, upon which an estimate can be made, that would be of any greater value than a mere guess, and the same answer is made to Interrogatories 5, 6, 7 and 8.

Fourth. In response to Interrogatory No. 9, my reply is, only the amounts hereinbefore set forth in answers to Nos. 1 and 2.

This Supplemental Report by agreement is hereby made a *a* part of the original report, and to be filed as of the same date it is filed, April 12, 1912.

Respectfully submitted,

[Copy]

ROBERT SLOAN,
Special Master in Chancery.

(Endorsed:) Filed Ap-l 5, 1912. Wm. C. McArthur, Clerk, by Louis J. Adelman, Deputy.

304 EXHIBIT "A" TO MASTER'S SUPPLEMENTAL REPORT.

In the District Court of the United States, Southern District of Iowa, Central Division.

No. 71–M (C. C.) In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al. Respondent-.

Request for Additional Findings.

The Respondent, the City of Des Moines, respectfully requests the Special Master herein, the Honorable Robert Sloan, to add to the preliminary draft of his report findings upon the following propositions:

First. How much, if any, of the revenue from the sale of gas in the city of Des Moines during the years 1906, 7, 8, 9 and 10, giving the amount for each year, was used by the Complainant in payment for replacements and additions to plant and charged to the construction of capital account?

Second. How much, if any, of the revenue from the sale of gas in the city of Des Moines during the years 1906, 7, 8, 9 and 10, giving the amount for each year, was used by the Complainant in payment for replacements and additions to plant and charged in and against operating expenses?

Third. What, under the evidence, would have been the
305 probable total increase in sales for gas for the year 1911 with sales being made at 90c rate?

Fourth. What, under the evidence, would be the probable increase in the sales of gas for 1912, sales being made under the 90c rate as provided in the ordinance in question in this case?

Fifth. What, under the evidence, would have been the probable increase in the sales of gas to the existing consumers of the Complainant company for 1911 if the 90c rate ordinance had been put into operation?

Sixth. What, under the evidence, would be the probable increase in the sales of gas to the present consumers of the Complainant company for 1912 if the 90c rate ordinance had been put into operation?

Seventh. What, under the evidence, would have been the probable increase in the sales of gas through new customers or consumers for the year 1911 if the 90c rate had been put into operation?

Eighth. What, under the evidence would be the probable increase in the sales of gas through new customers or consumers for the year 1912 if the 90c rate had been put into operation?

Ninth. How much of the present value of the Complainant's plant is represented by money expended for replacements and additions to plant charged in and against operating expenses and not appearing in the construction or capital account?

(Signed) H. W. BYERS,
R. O. BRENNAN,
Solicitors for Respondent.

306 And thereafter to-wit: on the 29th day of April A. D. 1912 there was filed in said Cause a Stipulation as to the Preliminary Draft of the Master's Report which said Stipulation is in the words and figures as follows to-wit:

307 In the District Court of the United States for the Southern District of Iowa, Central Division.

No. 71-M (C. C.). In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Respondents.

Stipulation.

In the above entitled cause Hon. Robert Sloan, the Special Master to whom the same was referred has furnished counsel for the respective parties copies of a preliminary draft of his report, which preliminary draft, however, does not include or set out the final conclusion of the said master or his recommendation as to whether the decree in this case, should be for the complainant or for the defendants, but contains nothing as to said matters.

At the suggestion of said master, and upon his recommendation it is hereby stipulated and agreed that the submission of any further draft report to counsel and the presentation to the said master of any objections or exceptions to said preliminary draft report, or to any further draft report, and requests for, further or additional find-

ings of fact or law, pursuant to any rule of practice or otherwise, are hereby waived; and it is further agreed that the master may complete and file his said report without submitting to counsel any further draft thereof, and that after said report is completed and filed each party hereto shall have the right to file exceptions thereto within the time fixed by the rules with the same force and effect in all respects as if the matters embraced in and covered by
308 such exceptions had been embraced in and covered by exceptions previously taken before the master.

Dated April 1, 1912.

(Signed) CARR, CARR & EVANS,
READ & READ,
GUERNSEY, PARKER & MILLER,
Solicitors for Complainants.

(Signed) H. W. BYERS &
R. O. BRENNAN,
Solicitors for Respondents.

(Endorsed:) Filed April 29th, 1912. Wm. C. McArthur, C'lk. By Hattie Blank, Dep'ty.

309 And thereafter to-wit: On the 3rd day of May, A. D. 1912, there was filed in said cause Complainant's Exceptions to the Report of Robert Sloan, Esq., Special Master, which said Exceptions are in words and figures as follows to-wit:

310 Filed May 3rd. 1912. Wm. C. McArthur, Clerk. By Hattie Blank, Deputy.

In the District Court of the United States in and for the Southern District of Iowa, Central Division.

No. 71-M. Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Complainant's Exceptions to Report of Special Master.

Now comes the Des Moines Gas Company, the complainant in the above entitled cause, and excepts to the report of Hon. Robert Sloan, the special master, filed in this cause on the 5th day of April, A. D. 1912, and to the supplemental report of said master herein filed April 12, A. D. 1912, and for cause of exception, shows:

First. That the master in said report stated and certified that the value of the real estate in controversy is the sum of $150,000.00; whereas the master ought to have found that the value of the said real estate is not less than the sum of $242,961.00.

311 Second. That the master has in said report stated and certified that:

"The evidence of expert accountants is only competent in relation to books of account which involve numerous items, when the books themselves are introduced in evidence;"

whereas, the master ought to have found that the testimony of such experts is competent where such books of account have been submitted to the inspection and examination of the experts of the opposing party and have been so examined and where there has been an offer to produce the same for use upon cross-examination, if desired.

Third. That the Master has in said report stated and certified that Prof. William A. [D.] Marks is an engineer of much experience in connection with gas plants; whereas the master ought to have found that the said Marks was an engineer of but insignificant experience in connection with such plants and that said experience was not of a recent date.

Fourth. That the master has in said report stated and certified: "These four gentlemen (including said Marks) are all experts in matters concerning which they have testified in this case, and show themselves conversant therewith and experienced engineers;"

whereas, the said master ought to have found that the said Marks was not expert in the matters concerning which he testified in this case, and had not shown himself conversant therewith and was not an experienced engineer as to said matters.

Fifth. That the said master has in said report stated and certified that the base value sustained by the clear weight of the evidence in this case is as follows:

312 Buildings—Exhibit "C-*a*"	$66,528
Contents of Buildings—Exhibit "G"	137,892
Yard Structures—Exhibit "H"	206,728
Miscellaneous—Exhibit "I"	57,912
Distribution System—Exhibit "L"	1,505,966
Total Base Figures	$1,975,026;

whereas, the said master ought to have found that the said base values were as shown by the clear preponderance of the evidence, not less than:

Buildings	71,283
Contents of Buildings	150,593
Yard Structures	216,189
Miscellaneous	71,671
Distribution system	1,561,111
Total Base Figures	$2,070,848

Sixth. That the master has in said report stated and certified that: "Contingencies are such expenditures as arise from a lack of foresight and care in preparing the plans and specifications;"

whereas, the master ought to have found that contingencies cover many other items and include all matters which it is impossible to definitely anticipate, which involve expense in the construction of the plant, such as delays in the receipt of material and apparatus, injuries caused by storms, delays due to inclement weather, expenses caused by strikes and other labor difficulties, expense due to variations in the prices of labor, material and apparatus during the progress of the work, and, generally, all expenses due to the fact that the work involves varying and uncertain factors.

Seventh. That the master has in said report stated and certified that:

313 "Taxes during the construction.

"The latter is regarded by me as very questionable. It is in a certain sense making taxes an asset rather than a liability, and the amount is so vague and uncertain that it has been given very little consideration and weight in fixing the overhead charges. Either the money or the property should pay taxes;"

whereas, he should have found that taxes during construction are part of the cost of reproducing the property.

Eighth. That the master has in said report stated certified:

"The organization expenses are shown to have been the sum of $6,922, and after careful consideration of the case, it is my conclusion that 15 per cent in addition to the cost of organization is a fair and just allowance therefor;"

whereas, the master ought to have found that not less than 25 per cent should be added to the base figures or cost of labor and material in order to cover and provide for what he has denominated "overhead charges."

Ninth. That the master has in said report refused to allow any overhead charges upon the real estate; whereas, he should have allowed such charges and have added them to the value of the real estate in an amount not less than $40,000.00, including the expense of optioning the real estate and testing it and examining the title and for engineering advice as to its advisability and for interest upon its cost during construction and for taxes upon it during construction.

Tenth. That the master in the said report stated and certified that the per cent condition of the entire physical plant was at the date of the valuation only 85.3, making the depreciation thereon $333,878; whereas, the clear preponderance of the testimony shows that the per cent condition of the said plant was at that time not less

314 than 88.2 per cent, and that the depreciation thereon was much less than charged against it by the master.

Eleventh. That the master has, in said report, stated and certified that the total physical value of the property in question is the sum of $2,240,928; whereas, the master ought to have found that the said total physical value, as shown by the clear preponderance of the evidence, was not less than $2,653,441.

Twelfth. That the master has in said report stated and certified that there should be deducted from what is called the "total physical

value" as found by him, the sum of $140,000, representing the cost of removing and replacing pavements, where pavements existed over the mains at the date as of which the valuation is made, but where no such pavements existed at the dates when the mains were laid; whereas, the master ought to have found that no deduction should be made on this account and that the value of the mains should be determined with reference to existing conditions and not with reference to the conditions which existed at the time the mains were laid.

Thirteenth. That the master has in said report stated and certified as to the said item of $140,000:

"But where pavements are laid after the mains are installed, they have expended no money in taking up and replacing pavements. An allowance, therefore, makes reproduction the ultimate question, and not the reasonable value of the mains, unless it further appear that the value of the mains are enhanced thereby to the extent of the cost of taking up and replacing pavements, which is not shown in this case. When the whole evidence is considered, the contrary is shown;"

whereas, the master ought to have found that the value of the mains in question as of the date of the valuation is determined, not by what may have been expended in installing the said mains,
315 but by what it would cost to reproduce them, less the proper charge on account of depreciation, and ought to have found that changes in conditions since the mains were laid resulting in enhancing the cost of reproducing them, result in corresponding enhancements in the value of the existing mains, and ought to have found that the evidence which shows that because of the placing of pavement over these mains, the cost of reproducing them would be enhanced $140,000, showed that the value of these mains had been enhanced.

Fourteenth. That in the consideration of the said item of $140,000, the master has in his said report adopted as the basis for determining the present value of the mains in question as to the matter of paving, their original cost less depreciation, and as to other items their cost of reproduction less depreciation; whereas, he should, in order to ascertain present value, in view of the difference in the conditions, existing at present and when said mains were laid, have consistently applied the cost of reproduction, less depreciation, as to all of the items going to the value of the mains.

Fifteenth. That the master has in said report stated and certified as to this matter of enhancement in the value of mains on account of paving over them that:

"The authorities on this question are conflicting and the question is not definitely settled;"

whereas, the master ought to have found that the authorities upon this question are without conflict and that it has been definitely settled.

Sixteenth. That the master has in said report in connection with the discussion of the said item of $140,000, assumed that the only

change in conditions which would enhance the value of mains is some change in conditions which would prolong their life: whereas, the master ought to have found that there are other changes in
315 conditions which would result in an enhancement in the value of mains laid under different conditions.

Seventeenth. That the master has in the discussion of the said item of $140,000, stated that:

"Such added value is wholly theoretical, when no benefit is derived therefrom; but rather the reverse thereto by reason of the increased cost of repairing them. To hold otherwise would be permitting them to reap where they have not sown;"

whereas, he ought to have found that such added value is real and not theoretical.

Eighteenth. That the master has, in said report, stated and certified that:

"The evidence followed strictly might require me to make it higher, could my mind rest satisfied that the 'Going Value' of this concern is worth more, but I cannot feel satisfied that such is the case, and regard $300,000 as every dollar it is worth over and above its physical value, and in my judgment, it is worth that much more than a plant would be that had to develop its business;"

whereas, the master ought to have found the said item of going value to be not less than the sum of $530,932, as clearly shown in the preponderance of the evidence.

Nineteenth. That the master has in said report stated and certified:

"The opinion in the recent case of the Cedar Rapids Gas Co. vs. Cedar Rapids, adds additional emphasis thereto. Not only so, but it also renders it extremely doubtful that 'Going Value' will be included in valuation of such a plant as the basis of return, beyond the fact that it is in 'successful operation.' That would exclude the sum of $300,000 estimated in this case, on the grounds that when the ordinance was enacted, it already possessed a well developed and paying business.

"In my judgment, after considering the able and thorough arguments of counsel, that it is decisive of the question, and
317 holds that 'Going Value' should not be considered in determining the basis upon which the Complainant is entitled to have its return reckoned, and feel that it is my duty to so state;"

whereas, the master ought to have found that the said opinion of the Supreme Court of the United States does not hold that going value should be excluded in determining the basis upon which the complainant is entitled to have its return reckoned, but on the contrary, recognizes the fact that going value should be considered in determining the said basis.

Twentieth. That the master has in said report stated and certified, in substance, that the fact that the property in question is a going concern, characterized by an established business, with a large number of consumers attached to it, and a developed business, should not

be taken into account; whereas, the master ought to have found that in ascertaining the value of the complainant's property upon which the rate of return afforded by the ordinance in question should be computed, all of the elements affecting that value should be taken into account, including whatever is contributed by the fact of the connection of the items, making a complete and operating plant.

Twenty-first. That the master has in said report stated and certified in effect that the value of the complainant's property as of the date of the injury, upon which its return should be computed, is the mere cost of purchasing the land, constructing the buildings, putting in the machinery and installing the mains, meters and services with the working capital—in other words, the mere cost of reproducing the physical property, less depreciation; whereas, the master ought to have found that in order to ascertain said value there must be taken into account the additional value created by the fact of many connections with buildings, and actual earnings, including whatever
318 is contributed by the fact of the connection of the items making up a complete and operating plant.

Twenty-second. That the master has in said report, in effect, stated and certified that the item designated by him as "going value" is something separate and apart from the physical property; whereas he ought to have found that it is an element contributing to the value of each tangible part of the property and that its existence is solely as a characteristic of the structure and that the structure is a structure whose value is affected by the fact that it is in use.

Twenty-third. That the master has in said report stated and certified:

"The evidence shows that this plant is used by the Wisconsin Rate Commission, when a public utility has, through no fault on its part, met with losses in developing its business, or otherwise, for the purpose of obtaining a basis of value on which to fix rates for the future, which will enable it gradually to recoup its losses. It is not used otherwise;"

whereas, the master ought to have found that the said plan is used by the Wisconsin Rate Commission for the purpose of ascertaining the investment value of the property of a public utility which should be taken as a basis upon which to compute the return to which it finds such utility entitled.

Twenty-fourth. That the master has in said report stated and certified:

"The amount at 2¾ per cent depreciation on Complainant's plant, beginning with the year ending June 30, 1887, is $3,224,783 (Complainant's Exhibit 23, page 43), at 2½ per cent depreciation, is $3,098,848 (Page 42, Complainant's Exhibit 26), at 2 per cent depreciation, $2,915,781 (Complainant's Exhibit 25), at 2¼ per cent depreciation, $2,007,485;"

whereas, the master ought to have found that the amount at 2¾ per cent depreciation was $3,484,586, and not $3,224,783, and at

2½ per cent depreciation $3,343,394, and not $3,098,848,
319 and at 2 per cent depreciation $3,135,241, and not $2,915,-
781, and at 2¼ per cent depreciation, $3,240,000, and not $2,007,485.

Twenty-fifth. That the master has in said report stated and certified:

"While it is fair and just under the circumstances in which the Wisconsin Commission apply it, it is manifest that it is not in any sense of the word, competent evidence to prove the value of Complainant's plant, in a case wherein the sole issue is on the rates established by the ordinance in question, in this case so low that they are confiscatory and the ordinance therefore invalid;"

whereas, the master ought to have found that the method in question is competent if and to the extent that testimony as to cost and actual investment is competent as bearing upon the question of value of complainant's plant.

Twenty-sixth. That the master has in said report stated and certified that the complainant is entitled to a return of only 8 per cent upon the amount of its investment, whereas, the master ought to have found that the evidence shows clearly and beyond a reasonable doubt that the complainant is entitled to a return of not less than 10 per cent upon the amount of its investment.

Twenty-seventh. That the master has in said report stated and certified:

"Complainant claims that in estimating the net profit for manufacturing and distributing gas to its customers, that there should be taken into account and allowance made for the necessary expenses which it has and will incur in connection with the establishment of rates in this action. In other words, its expenses in this action, not covered by the costs of suit. In my judgment, no allowance therefor can be made in determining the future cost of gas for the following reasons;"

whereas, the master ought to have found that the necessary ex-
pense incurred by the complainant in connection with rate
320 regulations and litigation arising therefrom is a part of its
necessary operating expenses and a factor which should be taken into account in determining the operating expenses of the company in the future.

Twenty-eighth. That the master has in said report stated and certified, in substance, that the amount of $10,000 per annum paid by the complainant to certain of its officers, who are also officers of The United Gas Improvement Company, should not be taken into account in estimating the amount of operating expenses of the complainant; whereas, the master ought to have found that the services on account of which such salaries are paid are necessary services and that such salaries were expenses necessarily incident to the operation of the complainant's plant and that the amounts paid on account of such services were necessary factors in determining the operating expenses of the complainant for the future.

Twenty-ninth. That the master has in said report stated and cer-

tified with reference to the services covered by the salaries referred to in the preceding exception:

"There is no evidence that shows that the services so rendered are in fact worth the amount represented by these salaries, and in my judgment, their allowance and payment would not be prima facie evidence thereof;"

whereas, the master ought to have found that the evidence shows that the services in question were in fact worth the amount represented by the salaries referred to and that their allowance and payment was prima facie evidence thereof.

Thirtieth. That the master has in said report stated and certified with reference as to the services and salaries referred to in the two last preceding exceptions:

"There is, therefore, no basis upon which an allowance can be made therefor, in determining the future cost of producing
321 and distributing gas by the Complainant company to its consumers, and, hence, no allowance is made therefor. This amounts to 1.88 cents per M. C. F. of gas;"

whereas, the master ought to have found that under the testimony an allowance should have been made for the salaries in question in determining the future cost of producing and distributing gas by the complainant.

Thirty-first. That the master has in said report stated and certified, in substance, that in determining the future cost of producing and distributing gas, the contributions of the complainant to the Greater Des Moines Committee, Incorporated, should not be considered as a factor; whereas, the master ought to have found that such contributions should be taken into account as a factor in ascertaining the cost to the complainant of manufacturing and distributing gas in the future.

Thirty-second. That the master has in said report stated and certified:

"The ordinary insurance, which the company has been carrying, should and has been, included in the operating expenses. But beyond this none other should be considered. In determining the rate of return, the hazards of the business are all eliminated by casualty insurance, then, the rate of return should be diminished. The Exhibits of Complainant on this claim No. 89, have been given no consideration beyond fixing the rate of return;"

whereas, the master ought to have found that all items of insurance were a part of the operating cost of the complainant, and ought to have found further that no part of said operating costs should be paid out of the return which should be applicable solely to interest and profits.

Thirty-third. That the master has in said reports, in effect, stated and certified that based upon the operating costs of the year 1910, for the purpose of estimating the operating costs of the
322 complainant in the future, 62.98 cents should be taken as the cost of manufacturing and distributing gas, not includ-

ing depreciation; whereas, the master ought to have found that based upon the experience of the said year the actual operating costs of the said year should have been so taken, without deduction, that is, 66.28 cents, for the purpose of estimates as to the future.

Thirty-fourth. That the master has in said report, in effect, stated and certified, that the estimates of the future operations of the complainant's plant, based upon the results of the first ten months of the year 1911 should be based, not including depreciation, upon operating cost of 61.73 cents; whereas, he ought to have found that such estimate should be based upon the actual operating cost for said period, not including depreciation, that is, 77.14 cents.

Thirty-fifth. That the master has in said report stated and certified that the estimates as to the future earnings of the complainant's plant, based upon the operation of the five years, from 1906 to 1910, inclusive, should adopt as the factor for the cost per thousand feet of gas, 62.58 cents; whereas, the said master ought to have found that for such estimates there should have been taken as such factor the actual cost of manufacturing and distributing gas for such period, not including depreciation, which was 65.34 cents.

Thirty-sixth. That the master has in said report, in effect, stated and certified that the lowest cost of manufacturing and distributing gas, not including depreciation, for any year in the five-year period preceding January 1st, 1911, is a proper basis to adopt for the purpose of estimating the results of the operations of the company in the immediate future; whereas, the master ought to have found that such estimates should be based upon an average of such operating costs so as to eliminate the results of abnormal conditions.

323 Thirty-seventh. That the master has in said report stated and certified that 6.67 cents per thousand feet of gas sold is a proper allowance in determining the future results of the operation of complainant's plant for depreciation; whereas, the master ought to have found that on account of such depreciation there should be an allowance of not less than 8 cents per thousand cubic feet of gas sold.

Thirty-eighth. That the master has in said report in the estimates of the future cost to the complainant of producing and distributing gas included nothing whatever representing the expense which will be incurred by the complainant in the immediate future on account of contributions to the Greater Des Moines Committee, or for like purposes; whereas, the master ought to have found that the said items of expense, either in the form of contributions to the Greater Des Moines Committee or in some other form, will in the future be necessary items of the operating expenses of the complainant's plant, and ought to have made a proper allowance therefor.

Thirty-ninth. That the master has in said report, in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever for the expenses which the complainant has incurred and will incur in connection with litigation with reference to rates; whereas, the master ought to have found that the said expenses are a necessary and inevitable part of the operating

costs of the complainant, and ought to have made a proper allowance therefor.

Fortieth. That the master has, in said report, in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever on account of the radical increase in the complainant's taxes, which the master finds is imminent; whereas, the master ought to have found that on account of
324 such increase in taxes this item of the operating costs of the complainant will be larger in the future than it has been in the past, and should have treated the same accordingly.

Forty-first. That the master has, in said report, in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever for the increase in the operating costs of the complainant which the testimony shows will ensue from the fact that the ordinance in controversy provides no penalty for failure on the part of consumers to pay promptly; whereas, the master ought to have found that the failure of the ordinance in question to provide for such a penalty would increase the operating costs of the complainant in the future, and in his estimates of the future results of its business, ought to have taken this factor into account.

Forty-second. That the master has, in said report, in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever for expenses which will be incurred by the complainant on account of contributions to the Greater Des Moines Committee, in litigation with reference to rates, services rendered by the officers of The United Gas Improvment Company to the complainant, increase in the complainant's taxes, or increase in its expenses due to the fact that the ordinance in controversy provides for no penalty for failure to pay promptly; whereas, the master ought to have found that each of the items referred to is a necessary item of operating expense and should have made a proper allowance therefor.

Forty-third. That the master has in said report in his estimates of the future cost to the complainant of producing and distributing gas in each instance adopted as the factor for the operating cost, figures which were lower than the actual normal operating costs of the complainant as shown clearly and satisfactorily by the testimony.

325 Forty-fourth. That the master has in said report stated and certified in substance that the increase in the investment in the complainant's distribution system required on account of the increased sales which are anticipated in the future, will be at the rate of $2.00 per thousand cubic feet of increase in such sales; whereas, the master ought to have found that increased sales would require increased investment at the rate of not less than $4.50 for each thousand feet of such increased sales.

Forty-fifth. That the master has in said report predicated his estimates as to the results of the future operations of the complainant's plant upon estimated operating costs which are lower than the actual operating costs of the complainant at the time that the estimates were made, and are lower than the average of its actual operating costs for the five years preceding the period covered by such estimates;

whereas, the master ought to have used as a factor in making the said estimates the average of the complainant's operating costs for the five years preceding the day when the ordinance in question was to become effective with such adjustments thereof as are required in order to make a proper allowance for the increases in the complainant's operating costs which the testimony shows will be inevitable in the immediate future.

Forty-sixth. That the master has in said report in making his estimates for the future, assumed as to each year that the additions to the plant in that year would be made at the end of the year and consequently has allowed no return on such additions until the succeeding year; whereas, the master ought to have taken into account the fact that such additions will be made, not at the end of the year, but during the year, and the fact that a return should be allowed upon them for not less than one-half of the year in which they are made.

326 Forty-seventh. That the master has in said report in connection with the investigation of the probable increase of sales of gas in the future, certified and found:

"The only thing in the past history of the plant that throws any light on the question is the table on schedule 4 of defendants' exhibit 30, a part of which has already been given;"

whereas, the master ought to have found that the complainant's exhibits showing the history of the complainant's property and of the development of its business for the past twenty-five years, and showing also the development of the city of Des Moines during the same period, all tend to throw light upon this question.

Forty-eighth. That the master has in said report stated and certified:

"While a slight increase in consumption may result from a reduction of ten cents per M. C. F. in price, in my judgment, it is much more apt to result in an increase of customers, and the table in schedule 4 very clearly shows it, in the increase thereof, in proportion to the inhabitants of the city, as shown by the first column on the right of the table;"

whereas, the master ought to have expressly and clearly limited said finding by the statement that such increase in customers could only come through an increase in the population of the city of Des Moines.

Forty-ninth. That the master has in said report stated and certified:

"There are many hazards in every manufacturing plant which insurance will not cover, and will not compensate, and hence, in fixing the rate of return at 8 per cent, it was intended thereby to cover all hazards, over and above such insurance, as the details of the cost of manufacturing and distributing gas show has been carried by the company and hence, in reckoning such cost, nothing additional has been included;"

327 whereas, the master ought to have found that the return to which the complainant is entitled is in excess of the expenses

incident to taking care of the hazards which grow out of the maintenance and operation of the complainant's property.

Fiftieth. That the master has in said report stated and certified as a conclusion of law that:

"This action having been brought and a temporary injunction granted restraining the enforcement of the ordinance without having first tried the effect of the rates therein prescribed, the complainant must establish by clear and satisfactory evidence that such rates are inadequate and confiscatory, and if upon the whole evidence there remains a reasonable doubt of the correctness of complainant's contention, then the bill should be dismissed without prejudice to a future action, and complainant required to try the same before instituting another action;"

whereas, the master ought to have found as a matter of law, that the complainant is only bound to sustain the correctness of the ultimate facts upon which its contention is founded by clear and satisfactory evidence.

Fifty-first. That the master has in said report stated and certified as a conclusion of law that:

"If, however, upon the whole case, there remains no reasonable doubt of the correctness of complainant's contention that the rates prescribed by the ordinance, will not afford an adequate rate of return, either in whole or in part, then it is entitled to have the injunction made perpetual, and the ordinance annulled as confiscatory;"

whereas, the master ought to have found as a conclusion of law that if upon the whole case the correctness of complainant's contention that the rates prescribed by the ordinance will not afford an adequate rate of return, either in whole or in part, appears by clear
328 and satisfactory evidence, then it is entitled to have the injunction made perpetual and the ordinance annulled as confiscatory.

Fifty-second. That the master has in said report carried the figures representing the annual sales in Valley Junction for the years 1912 and thereafter at a constant figure of seven million cubic feet, applying the total increase in said years to the city of Des Moines, and thereby improperly increasing the probable returns from the property in the city of Des Moines.

Fifty-third. That the master has in said report stated and certified:

"The rate of insurance against loss by accidents is about 1.42 per M. C. F. and the operating expenses show about .38c. for past damage claims, which in round numbers 1.04 cents per M. C. F. and this included as part of hazards in fixing the rate of return, but should the rate of return be reduced, then this ought to be included in the cost of gas;"

whereas, the master ought to have found that all of the hazards incident to the transaction of the business should be treated as a

part of the operating costs, and that none of them should be paid out of the return allowed upon the investment.

Fifty-fourth. That the master has in said report stated and certified that:

"In relation to the contribution to the Greater Des Moines Committee, upon examination of defendants' exhibit 27, page 181, I find there was a contract of subscription to that committee to pay $2,000 per year for three years, approved by the Board of Directors, September 13, 1909, and hence it runs into 1911, and perhaps included, but there is no obligation beyond that three years' approval and no obligation to pay it and thereafter at least, it should not be allowed in the future cost of gas;"

whereas, the master ought to have found that items of this character will be included in the future cost of gas, and should
329 therefore have allowed it in estimating such future cost.

Fifty-fifth. That the master has in said report stated and certified that:

"A part can be accounted for in the increase in wages. These conditions lead me to believe that with economy and care, the cost may be reduced below 60 cents, as it was in the year ending February 28, 1909, without detriment to the service;"

whereas, the master ought to have found that the testimony shows clearly and satisfactorily that the cost of manufacturing and distributing gas will in the future much exceed 60 cents per thousand cubic feet.

Fifty-sixth. That the master has in said report stated and certified that:

"These conditions lead me to believe that with economy and care the cost may be reduced below 60 cents, as it was in the year ending February 28, 1909, without detriment to the service. At least the future cost of gas is not clear and satisfactory to me. It is true that in this matter we are entering the realm of prophesy and none of us have that gift. What a trial under the present rates would produce is not before us and cannot be determined until it is so tried, only the past throws any light upon it;"

whereas, the master ought to have found that there is no fact or circumstance shown by the evidence from which a just or reasonable probability can be inferred that the future cost of gas will be less than the average cost for the five-year period considered; and ought to have found that on the contrary, the facts exclude any just or reasonable inference that the complainant's future operating cost will be less than such costs in the past.

Fifty-seventh. That the master has in said report stated and certified that:

330 "On new customers it ought to do the same, only it would at the same time cause additional value to be added to the plant, however, it would increase the profits materially in the final result, and the extracts show the emphasis placed by the court upon increased sales. It was one of the matters that caused that case to

be dismissed without prejudice with the admonition to give the rates a trial;"

whereas, the master ought to have found that the testimony shows without controversy that when the sales reach a maximum of 600,000,000 feet per annum, the minimum cost of production has been reached, and that increased sales will not thereafter tend to decrease the cost of gas; and that therefore it clearly appears in this case that increased sales will not afford to the complainant a fair return.

Fifty-eighth. That the master has in said report stated and certified that:

"Should the court hold that the $140,000 for taking up and replacing mains where none existed at the time the mains were laid, then a decree for the complainant would be imperative, should 'going value' be included in the basis for a return."

whereas, the master ought to have held that both the $140,000 item referred to and going value should be included in the basis for a return, and ought to have found that a decree for the complainant is imperative.

Fifty-ninth. That the master has in said report stated and certified that:

"Should the court hold that 'salaries general' and the contribution to the Greater Des Moines Committee be included in the future cost of gas, then a like result should follow. So, also, would rate regulation require a like result, should it be held a proper matter to be considered and 2 cents per M. C. F. be allowed therefor;"

whereas, the master ought to have found that the said items are necessarily included in the future cost of gas, and therefore
331 he should have found that a decree for the complainant is imperative.

Sixtieth. That the master has in said report stated and certified that:

"The opinion in the recent case of the Cedar Rapids Gas Co. vs Cedar Rapids, adds additional emphasis thereto. Not only so, but it also renders it extremely doubtful that 'Going Value' will be included in valuation of such a plant as the basis of return, beyond the fact that it is in 'successful operation.' That would exclude the sum of $300,000 estimated in this case, on the grounds that when the ordinance was enacted, it already possessed a well developed and paying business.

"In my judgment, after considering the able and thorough arguments of counsel, that it is decisive of the question, and holds that 'Going Value' should not be considered in determining the basis upon which the complainant is entitled to have its return reckoned, and feel that it is my duty to so state;"

whereas, the master should have found that going value should be considered in determining the basis upon which the complainant is entitled to have its return reckoned and should have held that said opinion requires it to be so included.

Sixty-first. That the master has in said report as a conclusion stated and certified that:

"The physical value as hereinbefore determined, is reckoned upon the fact that the plant was in 'successful operation' when the ordinance was enacted, otherwise its value would be much less. The 'Going Value' in that enhancement which results from a well developed and paying business;"

whereas, the master has in fact found in the said report, and ought to have stated and certified as his conclusion that what he denominates "physical value" includes only the cost of reproducing the mere physical property in a locality where it would be avail-
332 able for use, and does not include anything whatever either on account of the cost of reproducing the business and income now attached to complainant's property, or on account of the element in the value of said property due to the fact that the complainant's said property has attached to it a well developed business and is earning a large income.

Sixty-second. That the master has in said report stated and certified that:

"It is my judgment that the complainant's bill be dismissed without prejudice, at its cost, as in the case of Wilcox vs. Consolidated Gas Co., supra;"

whereas, the master ought to have found that the testimony shows clearly and satisfactorily that to put the ordinance in force will in whole or in part deprive the complainant of a fair and reasonable return upon the actual value of the property constituting its investment and ought, therefore, to have recommended a decree for the complainant upon the merits as prayed.

Sixty-third. That the master has in said report erred in finding that the testimony does not show clearly and satisfactorily that the rates fixed by the proposed ordinance will not afford to the complainant a fair return upon the present actual value of the property constituting its investment and would not afford such return upon such value at the date when the ordinance in question was to go into effect.

Sixty-fourth. That the master has in said report in effect certified and found that the material question is whether in the remote future the rates fixed by the ordinance in controversy may not afford to the complainant a fair return; whereas the only material question is whether those rates at the time the said ordinance purported to go into effect, and at the present time will afford to the complainant a reasonable and fair return upon the value of its property devoted to the use of the public.

333 Sixty-fifth. That the master has in said report stated and certified that there should be a decree in this case dismissing the complainant's bill without prejudice; whereas, the master ought to have found that there should be a decree annulling the ordinance in controversy.

Sixty-sixth. That the master has in said report stated and certified that:

"While this case is to the border line, I cannot say on the whole case that the evidence, beyond any just and fair doubt, satisfies me that the rates will prove confiscatory should the ordinance be put into effect and an actual test thereof be made;"

whereas, the master ought to have found and certified that there is no evidence which tends to indicate or which could afford the basis for a fair assumption that there will be any material increase in the consumption of gas by existing consumers sufficient to alter or modify the results of operation under the ordinance in question as found; and ought to have found further that beyond any just or fair doubt the ordinance in controversy if enforced will be confiscatory in its effect.

Sixty-seventh. That the master has in said report stated and certified that:

"So far as new customers are concerned, the estimates made are reasonably certain and these estimates (referring to the estimates of future net revenue for the years 1911, 1912, 1913 and 1914 showing deficits each year), are made with reference to them. None are made with reference to the increase from existing customers;"

whereas, the master ought to have found distinctly and in this connection that it is shown by a preponderance of the testimony beyond any just or fair doubt that a reduction of 10 cents in the rate for gas would not produce any increased consumption by existing customers of the complainant.

334 Sixty-eighth. That the master in his supplemental report has stated and certified that:

"Third. In response to Interrogatories Nos. 3 and 4, my report gives my estimate so far as new customers are concerned, but beyond that, there is no evidence, upon which an estimate can be made, that would be of any greater value than a mere guess, and the same answer is made to Interrogatories 5, 6, 7 and 8;"

whereas, the master ought to have found that the evidence shows clearly and satisfactorily that it would be impossible for there to be such an increase in the sales of gas to either old or new customers as to render the 90 cent rate remunerative.

Sixty-ninth. The master has in said report stated and certified that:

"Third. In response to Interrogatories Nos. 3 and 4, my report gives my estimate so far as new customers are concerned, but beyond that, there is no evidence, upon which an estimate can be made, that would be of any greater value than a mere guess, and the same answer is made to Interrogatories 5, 6, 7 and 8;"

whereas, the master ought to have found that the testimony as to the population of the city of Des Moines, and as to the history of the complainant's plant and business, including the effect upon sales to existing consumers of numerous decreases in rates, renders it clear that it would be impossible in view of the population of Des Moines for the sales to so increase as to afford to the complainant a fair return at the 90-cent rate.

The complainant bases a specific and separate exception to the said master's report and supplemental report upon each of
334½ the items of exception and objection thereto hereinbefore set out, and prays that said exceptions and each of them be sustained.

CARR, CARR & EVANS,
READ & READ,
GUERNSEY, PARKER & MILLER,
Solicitors for Complainant.

335 And thereafter to-wit: On the 4th day of May A. D. 1912 there was filed in said cause Defendants' Exceptions to the Report of Robert Sloan Special Master, which said Exceptions are in words and figures as follows to-wit:

336 In the District Court of the United States, in and for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Exceptions to the Master's Report.

Come now the defendants in the above entitled suit and make the following exceptions to the report of Honorable Robert Sloan, special master, filed in said suit on the 5th day of April, A. D. 1912.

First. The defendants except to the finding of fact by said Master in said report that the value of complainant's property is $2,240,928.00 because such finding is contrary to the evidence and is much greater than the value of complainant's property as shown by the evidence.

Second. The defendants except to the finding of fact by said Master in said report fixing the value of that part of complainant's property designated as real estate at $150,000.00 because such finding is contrary to the evidence and is much greater than the value of the said real estate as shown by the evidence.

Third. The defendants except to the finding of fact by said Master in said report fixing the value of that part of complainant's plant designated as the distribution system at $1,505,966.00 because such finding is contrary to the evidence and is much greater than the value of the said distribution system as shown by the evidence.

337 Fourth. The defendants except to the finding of fact by said Master in said report fixing the value of that part of complainant's plant designated as the buildings, contents of buildings, yard structures and miscellaneous at $469,060.00 because such finding is contrary to the evidence and is much greater than the value of said buildings, contents of buildings, yard structures and miscellaneous, as shown by the evidence.

Fifth. The defendants except to the conclusion of law by said Master in said report that the item designated as overhead charges

should be included in reaching the physical value of the complainant's plant.

Sixth. The defendants except to the finding of fact by said Master in said report, that there should be added to the physical value of complainant's plant the sum of 15% thereof in addition to the cost of organization expenses, because if said item designated as overhead charges is to be allowed, such finding as to said amount is contrary to the evidence, and is an excessive amount to allow for said item as shown by the evidence.

Seventh. The defendants except to the failure of the said Master to find, as a matter of fact, that said so-called overhead charges had been returned to the complainant through the operating expenses.

Eighth. Defendants except to the finding of fact by said Master in said report, that 6.67 cents per thousand cubic feet of gas manufactured and sold by complainant is the fair amount to allow in determining what the operating expenses should be in the future, because such finding is contrary to the evidence, and said
338 amount of 6.67 cents per thousand cubic feet is much greater in amount than should be allowed in determining what the operating expenses of the complainant should be in the future as shown by the evidence.

Ninth. The defendants except to the finding of fact by said Master in said report, that the complainant should be allowed the amount of $140,000.00 as working capital because such finding is contrary to the evidence, and is much more than the complainant is entitled to have allowed as working capital as shown by the evidence.

Tenth. The defendants except to the finding of fact by said Master in said report, that there should be deducted from the valuation of the complainant's distribution system the sum of $140,000.00 in round numbers included in the cost of mains laid in the streets when the streets were not paved at the time the mains were laid, because such finding is contrary to the evidence, and is much less than the amount which should have been deducted from the valuation of complainant's plant and property as shown in said report, which included the cost of mains laid in the streets when they were not paved at the time, as shown by the evidence.

Eleventh. The defendants except to the finding of fact by said Master in said report that Prof. W. D. Marks, one of the witnesses for the defendants, omitted one of the buildings forming a part of the complainant's manufacturing plant estimated at $15,000.00 because said finding is contrary to the evidence.

Twelfth. The defendants except to the finding of fact and conclusion of law by said Master in said report, that the complainant is entitled to earn eight (8) per centum per annum on the
339 value of its plant because such finding is contrary to the evidence and is much greater than the amount which the complainant is entitled to earn on the value of its property used in performing the service, as shown by the evidence.

(S'g'd) R. O. BRENNAN &
H. W. BYERS,
Attorneys for defendants.

(Endorsed:) Filed May 4, 1912. Wm. C. McArthur, Clerk, By Louis J. Adelman, Deputy.

340 And thereafter to-wit: On the 10th day of May A. D. 1912 there was filed in said cause a Supplemental Report of Robert Sloan Special Master which said Supplemental Report is in the words and figures as follows to-wit:

341 In the District Court of the United States, Southern District of Iowa, Central Division.

THE DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES et al., Defendants.

Exhibits & Costs.

Supplemental Report of Robert Sloan, Special Master.

The Special Master for Supplemental Report in relation to the Exhibits of the Complainant & Defendants says:

Complainant's Exhibits.

First, That the great body of Complainant's Exhibits are contained in a bound volume entitled:

"The Des Moines Gas Company
vs.
The City of Des Moines et al."

"Complainant's exhibits" and the front pages thereof contain a complete descriptive index thereof which identifies each exhibit from No. 1 to No. 93 inclusive, and shows what are contained in said volume and those that are not, and hence, it is unnecessary to further describe and identify them than by adopting said index.

342 Defendant's Exhibits.

Ex. 1. Assessment Roll for the year 1908 of Des Moines Gas Company.
Ex. 2. Form for Requisition by the Manager of the Manager of the Des Moines Gas Co. on Philadelphia Office.
Ex. 3. Requisition No. 565.
Ex. 4. Authorization of Extension of Mains as per Exhibit 3—dated December 5th, 1910, and read in evidence page 728, Record.
Ex. 5. Sketch Book No. 7, offered, page 731.
Ex. 6. Certified copy of report of H. I. Lea to City.
Ex. 7. Calculations.
Ex. 8. A study of life and age by Baehr.
Ex. 9. History of D. M. G. Co. by development curves.

Ex. 10. Blue Print entitled "Historical Development Curves."
Ex. 11. Same Subject.
Ex. 12. Gas sold in C. F. from Dec. 31, 1904 to Dec. 31, 1910.
Ex. 13. Record of Mains laid.
Ex. 14. History of Price of Gas.
Ex. 15. Statement of Profit & Loss.
Ex. 16. Statement of Profit & Loss.
Ex. 17. Cost of Services.
Ex. 18. Annual Estimate 1911.
Ex. 19. Routing Oil on C. B. & Q.
Ex. 20. Oil Contract & Correspondence.
Ex. 21. Coke Contract, p. 2103.
Ex. 22. Analysis of Real Estate account.
Ex. 23. Report of W. D. Marks (Book form and bound).
Ex. 24. Blue Print copy of Buffalo Chart.
Ex. 25. Stockholders' & Directors' minute book No. 1, of C. C. G. L. Co., p. 2885.
Ex. 26. Same No. 2, p. 2885.
Ex. 27. Stockholders' & Directors' Meeting of Des Moines Gas Co.
Ex. 28. Proceedings not entered in said book.
Ex. 29. Plat prepared by City Assessor Parker, p. 3046.
343 Ex. 30. Report of James Hall, expert accountant for City (Book form).
Ex. 31. Rate Litigation expenses of D. M. G. Co.
Ex. 32. By Hall—Computation of difference between his report and Hanenah. P. 3194.
Ex. 33. Investment value of plant.
Ex. 34. Wisconsin plan illustrations.
Ex. 35. Summary of plant investment.
Ex. 36. Estimated average Investment.
Ex. 37. Main Dep't Contract.
Ex. 38. C. C. G. Co. cash invested in construction and working capital (Transcript).
Ex. 39. Transcript of the Pratt affidavit in U. S. C. Court in case of Capital City Gas Light Co. v. Des Moines.
Ex. 40. Same of Pratt again.
Ex. 41. Same Wm. Henry White.
Ex. 42. In same case of Edward G. Cowdery.
Ex. 43. E. W. Bemis on calculations &c., in Book form.
Ex. 44. Pamphlet entitled "Issue in the foreground" (Gas).
Ex. 45. Price of C. I. Pipe.
Ex. 46. Illustration of Sinking Fund Method.
Ex. 47. Operating expenses of Bemis.
Ex. 48. Amount paid A. B. Cummins for opinion on the C. C. Gas Light Co. Franchise.
Ex. 49. Expenses of F. C. Morgan.
Ex. 50. Expenses of D. D. Reinhart.
Ex. 51. Notary's Services.
Ex. 52. Opinion of A. B. Cummins (Not offered).
Ex. 53. Expenses of J. S. Harrison.
Ex. 54. Expenses of J. S. Harrison.

Ex. 55. Notice of sale of $81,000 bonds and entry for books.
Ex. 56. Lillie's Check Book, P. 4477.
Ex. 57. Payment on Stock contracts.
Ex. 58. Same.
Ex. 59. Analysis of account with U. G. I. Co.
344 Ex. 60. Cash Book of Des Moines Gas Co., P. 4578.
Ex. 61. Moody Manual Service, P. 4591.
Ex. 62. Journal No. 1, D. M. G. Co., P. 4603.
Ex. 63. Journal No. 2, D. M. G. Co., P. 4603.
Ex. 64. Journal No. 3, D. M. G. Co., P. 4603.
Ex. 65. Ledger No. 1, D. M. G. Co., P. 4603.
Ex. 66. Ledger No. 2, D. M. G. Co., P. 4603.
Ex. 67. Comparative statement of Manufacture of Des Moines Gas 8 months August 31, 1911.
Ex. 68. Additions to plant to August 31, 1911.
Ex. 69. Gas Sales to Feb'y 28 to 1912.
Ex. 70. Synopsis of transactions of U. G. I. Co.
Ex. 71. Gas Ordinance of Minneapolis.
Ex. 72. Letter to Haines from Mayor of Minneapolis.
Ex. 73. Letter by Haines to Mayor Hanna.
Ex. 74. Mistakes in Complainant's Exhibit 65.
Ex. 75. Correction figures in Defendants' Ex. 43.
Ex. 76. Margin between price of gas and manufacturing expenses.
Ex. 77. Rate Regulation expenses.
Ex. 78. Officers Com. Trust Co. & U. G. I. Co.
Ex. 79. C. C. G. L. Co. authorization of improvements and repairs.
Ex. 80. Summary of data for tables 91 & 92, Defendants' Ex. 43.
Ex. 81. Wisconsin Theory.
Ex. 82. Blaises & Blaise account for work and transcript of Complainant witnesses.
Ex. 83. Receipt therefor.
Exhibits 84 "A", 84 "B", 84 "C", 84 "D", 84 "E", Transcripts of the books of the Des Moines Gas Co. remitted by it to the Philadelphia office and produced at Defendants' request.
Ex. 84 "F" Contract to build Holder.

345 He further shows that he has paid out of said funds the following amounts for which he is entitled to credit:

August	11, 1911.	Paid J. P. Blaise, stenographer, for services	$150.00	
October	14, 1911.	Paid J. P. Blaise....	500.00	
December	23, 1911.	Paid J. P. Blaise....	587.00	
		Total paid J. P. Blaise.....		$1,237.00
August	11, 1911.	Paid Frank C. Walrath, stenographer, for services.....	150.00	
October	14, 1911.	Paid Frank C. Walrath	500.00	

December 23, 1911. Paid Frank C. Walrath	501.90	
Total paid Frank C. Walrath		$1,151.90
Total paid stenographers		$2,388.90
October 4, 1911. Paid Jas. A. Rice on account for care of Records	10.00	
November 29, 1911. Paid Jas. A. Rice for same	20.00	
Total paid Rice		30.00
Paid room rent & Baggage at Victoria Hotel.	117.75	
Paid for board at Victoria Café & elsewhere during hearing	82.85	
Paid for R. R. fare during the hearing	40.00	
Paid expenses on final hearing, (room, board & carfare, three days)	16.00	
Two suit-cases	6.00	
Express for Records to Keosauqua	1.40	
Express on preliminary report and corrected copies to attorneys	.80	
Express of report & Copies to attorneys	.75	
Express of Exhibit No. 27 from Des Moines.	.20	
Express & drayage on records to clerk	2.06	
		267.81
Master's Compensation		5,000.00
		$7,686.71

He further reports that during the progress of the case he received the following amounts from the Complainant, and Defendant, The City of Des Moines as per order of the Court at the dates hereinafter stated—to-wit:

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Complainant.

May 25, 1911, Paid pursuant to order of the Court of date, May 11, 1911	$300.00	
October, 1911, paid pursuant to order of date October 2d, 1911	500.00	
Paid December 23, 1911, pursuant to order of date December 6, 1911	3,059.95	
		$3,859.95

Defendant.

July 14, 1911, paid pursuant to order of Court May 11, 1911	300.00	

October, 1911, paid pursuant to order of Court of date, October 2d, 1911	500.00	
December 23, 1911, paid pursuant to order of date December 6, 1911	3,059.95	
		$3,859.95
Total from both parties		$7,719.90
Total received		7,686.71
Balance		$33.19

Checks herewith enclosed for above balance.

(Sgd.) ROBT. SLOAN.

347 Vouchers are herewith submitted for the expenses incurred by the Special Master except for board, which was at the Victoria Café. A careful account was kept from day to day by me and the total is certified to be correct. The Café changed hands several times during the period and hence I cannot obtain a voucher therefor. The suit cases cost $6.00 but the voucher was for both $5.65, caused by exchanging one and paying the difference, 35 cts., making it $6.00.

The expressage was incurred as set forth in my account stated.

There is enclosed certified checks for $16.60 each to the Clerk which represents the amount of the expense fund unexpended, one half belonging to Complainant and the other to the City of Des Moines.

348 *Complainant's Witnesses.*

There has been furnished me by N. T. Guernsey of Counsel for Complainant, the following statement of the witnesses for the Complainant, giving the number of days in attendance at the trial and mileage claimed. I have no means at hand to verify the statement but assume that it is correct, but, should the Defendants object thereto will come to Des Moines at such time as will be convenient and determine the objection thereto.

The right to the mileage claimed and the per diem for witnesses is referred to the Court, as I am not familiar with the practice in the Federal Courts with reference to costs.

R. P. Bolton, July 14th, 15th, & 17th	3	Days.
Simon Casady, August 8th	1	"
Wm. C. Harbach, August 10th	1	"
A. E. Hollingsworth, October 6th	1	"
B. F. Kauffman, July 13th, 14, 15, Nov. 15th. "On this date this man was a witness for defendant."	4	"
R. R. McCutchen, July 17th	1	"
J. E. McDonnell, August 10th	1	"
Homer A. Miller, August 8th	1	"
Henry Moul, July 17, 18, 19, 20th, November 15th. "On last date this man was a witness for Defendant	5	"

Mack Olson, July 14, 15, & 17th, November 15th. "On last date this man was a witness for Defendant"				4	"
H. M. Porter, July 15th & 17th				2	"
349 Arthur Reynolds, August 10th				1	Days.
E. S. Root, August 10th				1	"
E. N. Sherman, October 5th, "Witness for Defendant"				1	"
C. S. Walker, August 10th				1	"
Jansen Haines, testified as Complainant's witness July 13th, 14th, August 10th, 11th, October 14th			5		"
Testified as Defendants' witness September 18th, 19th, 20th, October 2nd, 3rd, 4th, 5th, November 14th, 15th			9		"
				— 14	"
Harold Almert, Chicago, Ill., August 9th.	Mileage,	716		1	"
Andrew Cook, Chicago, Ill., August 9th.	"	716		1	"
W. F. Douthirt, Philadelphia, testified as defendants' witness: August 23rd, 24th. Sept. 19th, October 14th, Nov. 14th, 15th	"	2,350		6	"
G. W. Curran, Philadelphia, Testified as Defendants' witness: October 4th	Mileage,	2,350		1	"
J. W. Alvord, Chicago, Ill., witness: November 14th	Mileage,	716		2	"
J. A. Pearson, Philadelphia, Pa. Left Philadelphia, September 28th. Arrived " October 8th. Mileage, 2,350.					
Court attendance			6 days.		
Enroute			4 "		
Total			10 "	10	"
W. A. Baehr, Chicago, Ill. Left Chicago, July 7th. Arrived " Sept. 30th. Mileage, 716.					
Attendance			51 days.		
Enroute			2 "		
Total			53 "		
Total days in Des Moines, including Sundays.				63	"
Henry I. Lea, Chicago, Ill. Left Chicago July 7th. Arrived " Sept. 23rd. Mileage, 716.					
Attendance			47 days.		
Enroute			2 "		
Total			49 "		
Total days in Des Moines, including Sundays			52 "	52	"

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W. W. Randolph, New York, N. Y.
Left New York, July 19th.
Arrived New York, Aug. 6th.
Mileage, 2,530.

Attendance	12 days.		
Enroute	4 "		
Total	16 "	16 days.	

W. J. Hagenah, Chicago, Ill.
Left Chicago, — 11th.
Arrived " —— —.
Mileage, 716.

Attendance	50 days.		
Total days in Des Moines	61 days.	61	"

E. L. Heyser, Philadelphia, Pa.
Left Philadelphia, July 18th.
Arrived " July 27th.
Mileage, 2,350.

Attendance	4 days.		
Enroute	"		
	8 "	8	"
Total days in Des Moines	6 days.		

E. P. Walter, Philadelphia, Pa.
Left Philadelphia, July 10th.
Arrived " Aug. 13th.
Mileage, 2,350.

Attendance	26 days.		
Enroute	4 "		
Total	30 "		
Total days in Des Moines		31	"

W. F. Brodnax, San Francisco, Cal.
Left San Francisco, July 3rd.
Arrived " July 25th.
Mileage, 3,863.

Attendance	8 days.		
Enroute	10 "		
Total	18 "	18	"

With reference to the non-resident witnesses, the miles traveled appears also.

With reference to Baehr, Lea & Hagenah, the large number of days is due to the fact that they were detained here for a long while

because the City refused to release them but said that they must remain in attendance to answer further questions. As stated by Mr. Guernsey.

351 It will be seen by this statement that the Defendants' names are included in Defendants' list of witnesses.

What the practice in this Court is with reference to allowing Defendants witness fees is unknown to me. They are really only nominal defendants, however.

Should any objections be made to the claim of any of these witnesses, it will be heard by me, at such time as may be convenient to Counsel at Des Moines.

The records have all been sent to Des Moines and I have no means of verifying the claims here.

352 *Defendants' Witnesses.*

A statement of the witnesses and the number of days in attendance for the defendant has been furnished by Eskil C. Carlson, assistant City Solicitor, of Counsel for Defendants as follows:

Wm. D. Marks, Mileage not stated, Residence New York	36	Days.
Edward W. Bemis, Mileage not stated, Residence Chicago	52	"
James Hall, Mileage not stated, Residence Chicago	16	"
Andrew Sangster, Mileage not stated, Residence Chicago	49	"
George D. Dobson, Residence Des Moines	37	"
A. O. Hauge	1	"
B. S. Walker	1	"
W. H. Arnold	1	"
A. S. Wilcoxen	3	"
Frank Mathis	1	"
E. C. Pease	2	"
John McVicar	2	"
Jas. R. Hanna	1	"
James Parker	7	"

(Endorsed:) Filed May 10, 1912. Wm. C. McArthur, Clerk, by Louis J. Adelman, Deputy.

353 The foregoing statement shows that of the costs incurred as shown by this report except the witnesses, one half has been paid by the City of Des Moines and one half by the Complainant, The Des Moines Gas Company.

I herewith return the duplicate orders of the Court, and the orders made by the Special Master, except such as appear in the record of the evidence, and the statements of counsel of the names of the witnesses and time and mileage and unless it is *be* necessary to hear objections in relation to the claims for witnesses this closes my work in the case.

The delay in completing this report has resulted from the inability of counsel to obtain sooner the information concerning the time and service of the witnesses.

Witness my hand this 9th day of May, A. D. 1912.

ROBT. SLOAN,
Special Master in Chancery.

The duplicate orders are retained by me as I may need them.

ROBT. SLOAN,
Special Master.

354 And thereafter to-wit: On the 9th day of July, A. D. 1912, the following proceedings were had in said cause:

No. 71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Respondents.

On this day this cause came on for hearing on the exceptions to the master's report herein, the complainant, Des Moines Gas Company, appearing by Guernsey, Parker & Miller; Carr, Carr & Evans, and Read & Read, its attorneys, and the Respondents, City of Des Moines, Iowa, et al., appearing by Robert O. Brennan and H. W. Byers, its attorneys, the arguments of counsel are proceeded with, and not having been concluded when the hour for adjournment arrived, it is ordered that Court do now adjourn until tomorrow morning at ten o'clock.

(S'g'd) SMITH McPHERSON, *Judge.*

And thereafter to-wit: On the 10th day of July, A. D. 1912, the following proceedings were had in said cause:

No. 71-M. Eq.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Respondents.

It is hereby ordered that this cause be and the same is hereby continued until tomorrow morning at nine o'clock.
it is order that Court do now adjourn until tomorrow morning at nine o'clock.

(S'g'd) SMITH McPHERSON, *Judge.*

355 And thereafter to-wit: On the 11th day of July, A. D. 1912, following proceedings were had in said cause:

No. 71-M. Eq.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES, IOWA, et al., Respondents.

On this day this cause came on for further hearing, parties appearing as heretofore, the arguments of counsel are proceeded with and not being concluded when the hour for adjournment arrived,

it is ordered that Court do now adjourn until tomorrow morning at nine o'clock.

(S'g'd) SMITH McPHERSON, *Judge.*

And thereafter to-wit: On the 12th day of July, A. D. 1912, the following proceedings were had in said cause:

No. 71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES, IOWA, et al., Respondents.

On this day this cause came on for further hearing, parties appearing as heretofore, the arguments of counsel are proceeded with and the same having been concluded, the matter is taken under advisement by the Court.

356 And thereafter to-wit: On the 21st day of August, A. D. 1912, there was filed in said cause the Opinion of Honorable Smith McPherson, Judge, which said opinion is in the words and figures as follows to-wit:

357 In the District Court of the United States, Southern District of Iowa, Central Division.

No. 71-M.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES and others, Defendants.

Mr. Geo. H. Carr, Mr. W. L. Read, Mr. N. T. Guernsey, for complainant.

Mr. Robert Brennan, Mr. H. W. Byers, Mr. E. C. Carlson, for defendants.

Opinion.

SMITH McPHERSON, *Judge*:

A gas plant for lighting purposes was established in Des Moines a number of years ago, and now and for several years has been owned by complainant. At one time the rates were $1.30 per thousand; then $1.25; then $1.20; $1.15; $1.10, and finally $1.00. The City Council, by ordinance of December 27, 1910, fixed the rate at 90 cents. Then this action was brought to enjoin the enforcement of the ordinance for the reason, as is alleged, that a 90 cent rate will not be remunerative.

The case was referred to Robert E. Sloan as Special Master, to take the evidence, reduce it to writing, and report the same to the Court, together with his findings of fact and conclusions of law.

It is most gratifying to the Court to learn that council on both sides agree that learning, patience, fairness and all those qual-
358 ifications a Master in Chancery should possess, are evidenced by nearly one year of work by Judge Sloan in this case. And the Report of the Master now pending on exceptions fully warrants the correctness of the compliments of counsel as respects the work and Report of the Master. The Court deems it appropriate to make of record the statement that the administration of justice has been furthered by the untiring industry of the Master, whose record in this case is in keeping with his long time service as an Iowa Judge.

While counsel on both sides, and the Court unite on the foregoing, no one means to say that the Report of the Master is not subject to criticism and exceptions. Neither party is satisfied with all of his findings. But the real test of judicial action is not in the fact that a litigant is not satisfied, nor in the fact that a tribunal in proceedings to review may otherwise conclude.

I deem it appropriate to call attention to another phase of this litigation. The ordinance was adopted within a few minutes from its introduction. Quite likely it had been considered by the members in their individual capacities. But in open session it received but little consideration, and without the presence of anyone for the Gas Company. And every member voting to reduce the earnings had a direct personal and moneyed interest in thus reducing the rates. If a judge were to so act, his acts would be absolutely void, because of the long time maxim "No man can be judge in his own cause." And this ought to apply to those who act in an administrative or legislative capacity. This litigation has cost both the gas company and the city extravagantly large sums, most of which cannot be taxed as costs, nor recovered back by the party successful in the end. Much of this kind of litigation, and practically
359 all of the expense would be avoided if Iowa, like so many of the other, including some neighboring states, had an impartial and city non-resident commission or tribunal with power to fix these rates at a public hearing, all interested parties present, with the tribunal selecting its own engineers, auditors and accountants. Too often we have selfish, partisan, prejudiced and unreliable experts engaged for weeks at a time, at $100.00 or more and expenses per day, exaggerating their importance and making the successful party in fact a loser. With all of our boasted advancements, Iowa is a laggard in this matter, and will continue as such until these rate makings are taken from the power of city councils. Appeals to the courts will seldom be taken from the findings of such a tribunal.

But at present, the city councils have the duty and power to fix rates. And when rates are thus fixed by them, there is a presumption, greater or less according to the character and methods of their work, that such rates are remunerative. And in any event the corporation whose rates are reduced has the burden to show that the rates thus fixed are not remunerative, failing in which the rates must be observed and enforced.

And this was the matter referred to the Master. He reports that a 90 cent rate is sufficiently high for a sufficient return to the gas company. The order appointing Judge Sloan required him to take all the testimony, including exhibits, return the same to the Court, and make findings of fact with his conclusions of law. All these he has done. Both the city and the gas company have filed exceptions to the Report.

In many cases Courts themselves have heard the rate cases under 67 of General Equity Rules as amended. But in Districts like this, with but a single judge, the time would all be devoted to such 560 cases, with other litigation at a standstill. And the Supreme Court has said that it is a seemly and orderly and commendable course to refer such cases to a Master. R. R. vs. Tompkins, 176 U. S. 167; Lincoln Gas Co. vs. Lincoln, 223 U. S. 349.

And in case of such a reference the report of the Master stands for something substantial, and something besides recommendations. His conclusions have every reasonable presumption in their favor, and are not to be set aside or modified unless there clearly appears to have been error or mistake on his part. Camden vs. Stuart, 144 U. S. 104, 119, and cases therein cited.

So that it is incumbent on such party to make it clearly appear that the report of the Master is erroneous as respects the matters covered by exceptions. The city has filed several exceptions to the report; largely on questions of fact. But they were not argued orally, nor by brief, and the alleged errors are not made clearly to appear. Every of said exceptions of the city is denied.

There are some propositions now so firmly established by the courts as not to be longer within the limits of debate.

The net earnings according to the duration of the franchise the earning power of money in that vicinity, the hazards, moral and physical and otherwise, should vary from four to eight per cent besides that set aside for depreciation and maintenance. But there is and can be no rigid or inflexible rule as to the per cent to be thus earned. Stanislaus County vs. San Joaquin Company, 192 U. S. 201, 216; Knoxville vs. Knoxville Water Company, 212 U. S. 1; Wilcox vs. Consolidated Gas Co., 212 U. S. 19; Railway Commission vs. Cumberland Telephone Company, 212 U. S. 414; San Diego Land Company vs. National City, 174 U. S. 739; Lincoln Gas Co. vs. City of Lincoln, 223 U. S. 349; Cedar Rapids Gas Co. vs. Cedar Rapids, 223 U. S. 655.

The "good will" and that which the corporation enjoys as 61 being from the only source from which gas can be obtained is not an element of value on which profits should be earned in estimating whether the rates are remunerative or confiscatory. Willcox vs. Consolidated Gas Co., 212 U. S. 19, 52. All concede that the present value is the basis on which returns are to be estimated. And with the findings of the Master on that matter there are but two matters which merit consideration. And on these two questions the great weight of the argument by counsel has been made.

One of these is what is called the "reproduction theory" as deter-

mining the present value. When the gas mains were laid many of the streets were unpaved, but which are now paved streets (21 per cent). To reproduce the system at this time it would be necessary to take up something like a yard in width and for the length of 21 per cent of the streets, place the mains the proper depth, fill in with earth and replace the paving. The extra cost on account of the paving would amount to $140,000.00. The Master declined to allow this sum as forming part of the value of the plant.

It is claimed the true value of any building, structure or plant is that sum which it takes to reproduce it, less the depreciation of the one to be replaced. But little assistance is obtained from the authorities, although it is claimed the case of Wilcox vs. Consolidated Gas Company, 212 U. S. 19, is in point. The opinion does not show this to be so. Something of a showing is made in favor of that contention, by going to the original record, and the assignments of error. But it is not easily understood how the Supreme Court in that great case, so ably argued, with so much involved, meant to be so understood without expressly so declaring in the opinion.

No one doubts but that the cost of reproduction may in many cases be considered, and in some cases is a solution of the controversy.

362 What makes value, and what is the evidence thereof?

Metaphysical distinctions as to terms as used with reference to value by political economists aid but little. Exchange value, selling value, cost value, value for use as an utility, value as to incomes and so on are too often used loosely.

But the question is as to its value today with reference to income. What it may have cost is pertinent. What it will sell for is to be considered. And if destroyed by any agency, such as rust, crystalization, or other forces, what must be paid to reproduce it is a subject of inquiry. All of these may be considered. In my opinion those who maintain that what it will cost to reproduce the plant, less depreciation, is the true value, in many instances confound the real question with one of many evidences of the real value. Reproducing cost is an evidence of what the real value is after subtracting the depreciation. But what is to be done with the value of stocks and bonds on the reproductive theory? And what becomes of the original cost on the reproduction theory? And what becomes of the question of the increase or falling off in numbers of consumers? And the same as to increased or diminished expenses?

The theory at first thought in all cases is plausible and attractive, but in the end oftentimes utterly illogical and unreliable, originally adopted as a mere time-saver by mere theorists, and sought to be enforced as against substantial and unbending facts. If the plant is to be reproduced, when is it to be done? If when reproduced, will the streets then be paved, and if paved, paved with what? Must it all be reproduced at once, or the same covered by a number of years? If but gradually reproduced, why should not such cost go into either the operating or maintenance accounts? No one can state when it must be reproduced, and a material question arises; what then, as compared with the present, will be the price of labor, material and

freight? But finally and to my mind the conclusive reason
363 against the soundness of the reproduction under paved streets is, that to allow that theory to prevail, and to increase the capitalization now to the extent of $140,000.00, is to allow such gas rates as will pay a dividend on such sum from and after this date. But the sum of $140,000.00 is not put in the capital or value account until the plant is reproduced.

As of course, streets paved or unpaved make no difference in the earning power of the gas plant, and but little if anything goes more directly and accurately to the question of value of any structure or plant than its rental, earnings, or as a dividend producer.

There are many instances in which the reproduction theory is the best of all methods for getting at the present value, and in other instances the most misleading. And it is deceptive, in my opinion, to now add the cost of taking up and replacing pipe under paved streets at an estimated cost of $140,000.00 extra, and does not warrant an increased dividend of $8,400.00 or some greater sum. Such a dividend is a mere paper dividend, and is arrived at, not because of increased earnings, not because of increased capital or investments, not because of increased operating or maintenance expenses, but solely by reason of a supposed necessity of at some time, in some manner, under a then some kind of street, on a mere guess of what labor and material would then cost. Many of the principals with relation to railway rates are applicable to gas rates. And perhaps the latest analysis of the reproduction theory is found in the recent case of Louisville R. R. vs. Railway Commission, 196 Fed. Rep. 800, in an opinion of Judge Jones of the Alabama District. He shows the value of this theory, but likewise shows that it is not a hard and fast rule covering all phases. Finally, pipes under a paved street are of very long life; many times longer than if the streets were not paved.

The theory applied to paved streets is but a theory, is illogical and against facts, and was properly denied by the Master.

The Master finds that the "going concern" value of the
364 plant is $300,000.00, but the Gas Company by its exceptions, contends that this sum is not in the total of items making $2,240,928.00, the value placed on the entire plant. A "good will" value, and a "going concern" value, are often confused and used interchangeably, and I am inclined to believe that in some instances the Master's report is subject to this criticism. But whether this is so or not, is not of much importance, and it is more of a verbal criticism than a practical one. Under the authorities cited, as well as others easily found, from those cited, a "good will" value, by reason of being a monopoly, such as a Gas Company has under an ordinance, is not to be reckoned. The item of $300,000.00 for "going value" is quite important in this case. It is contended that if this $300,000.00 must be added and the consumption of gas remains the same, and the percentage of dividends allowed by the Master should stand, there will then be a shortage. The authorities already cited, and which in my opinion are in accordance with good sense, favor the allowance of a "going value." Every kind of

business, with no exception, has a value known as "going value," and such "going value" is in no way connected with the monopoly or "good will" value. The Gas Company contends that this "going value" of $300,000.00 was erroneously omitted by the Master in his totals, while the city contends that the sum of $300,000.00 has already been considered in making up the grand total of $2,240,928.00. I am of the opinion that the contention of the city is a correct one. This matter has received from me most earnest attention and consideration, and I will briefly present the reasons for my conclusion.

The Master fixes the physical value at $2,240,928.00. He means thereby and to my mind clearly states that as the value of the gas plant. There are but five items making this grand total. Counsel on both sides and I agree that "going value" is a part of the present value. The Master so held. It would be strange that the Master would hold that the "going value" of $300,000.00 en-
365 tered into the actual value, and then by inadvertence omit it. And it would be the more strange, after considering the items set forth in the report.

By the report he lists the following:

1. Working capital	$140,000.00
2. Real estate	150,000.00
3. Organization expenses	6,923.00
4. Meters in stock	6,603.00
5. Present value of physical property, aside from above items	1,937,402.00

Evidently because the Master used the word physical counsel seem to conclude that he did not include "going value." If he had omitted the word "physical" as an identification, then no one would doubt but that he did include "going value." But why would the Master include five items, and omit one that he meant to include? But the criticism is too refined and technical to stand as against his entire report. After enumerating the four items he adds "present value of physical property aside from above items, $1,937,402.00." This is as though he had said "all other items of value to be considered."

How can it be said that he meant "junk value"? Or "bare bones" value, as used in some of the cases? It is not fair to say that he meant junk value or bare bones value. He meant that was the value coupled with the preceding items of the gas plant; a plant making and selling gas. He meant that, and neither more nor less than that.

If the question were now for decision, I would have much doubt as to the item of working capital, $140,000.00. The Master was liberal with the Gas Company by allowing that item. I fail to find satisfactory evidence in this tremendous record, as to that item, although there is evidence bearing thereon. But every business man knows that the Gas Company daily makes deposits, and daily checks out for expenses, and at stated periods for interest on its bonds, and for divi-

dends. Whether it receives interest on its daily balances,
366 does not appear, nor does it appear whether it *it* must pay interest on its overdrafts if it has such. And if it has on hand $140,000.00 as working capital, why such sum would not earn interest is not make to appear. I only mention this to show that the Master has not borne down on the Gas Company.

When the restraining order was issued herein to be in force pending litigation, it was done with full consideration. An actual test is the highest degree of proof as to some phases, and some phases only of litigation like this. But it was made to appear that a very large number of gas consumers paid cash without waiting for the presentation of bills. This was made easy to do by the meters having annexed thereto a mechanism so adjusted that by dropping any sum of metal money through a slot, the requisite amount of gas could be used on the basis of $1.00 per thousand. And the mechanism would correctly measure the gas on that basis. As of course, to allow the consumer to have 1,000 cubic feet of gas at 90 cents, the wheels and appliances must be changed. To do this persons familiar with such mechanism must be employed. And it was made to appear that it would take more than a month of time to do this, and at much expense.

Every of the exceptions of the Gas Company is overruled.

The bill of complaint is dismissed with prejudice, and the interlocutory writ of injunction and restraining order vacated.

But the vacation of such writs will not be effective for sixty (60) days from the decree this day entered, to the end that such mechanisms may be adjusted to the ninety cent rate.

And to the further end that if said decree by actual test may prove that a ninety cent rate is not remunerative, the decree will provide that after three years of such actual test, this case may be reinstated, and the pleadings and evidence now on file, used as of full probative force, supplemented by such additional pleadings and evidence as may be deemed by either party advisable.

This will so materially reduce the expense as to make it almost nominal.

In the event of an appeal, a supersedeas bond in the pen-
367 alty of Five Thousand ($5,000.00) Dollars will be approved. But such a bond will only supersede the payment of the costs. Any other supersedeas must be applied for to the Appellate Court.

Such will be the decree.

Des Moines, Iowa, August 21, 1912.

(Endorsed:) Filed August 21, 1912. Wm. C. McArthur, Clerk, By Louis J. Adelman, Deputy.

368 And thereafter to-wit: On the same day August 21st, A. D. 1912 there was filed in said cause a Decree which said Decree is in the words and figures as follows to-wit:

369 In the District Court of the United States, Southern District of Iowa, Central Division.

No. 71-M.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES and Others, Defendants.

Decree.

Now on this August 21, 1912. the Court being fully advised, files an opinion herein finding the equities of the case to be with the defendants.

It is therefore considered, ordered, adjudged and decreed as follows:

1. The bill of complaint herein is dismissed with prejudice.

2. The complainant will pay the costs herein made to be taxed by the clerk, which will include monies paid by defendants on account of stenographers and typewriters, and monies paid by defendants on account of Master's compensation and expenses, for which, after forty (40) days, a writ of execution will issue.

3. The restraining order and temporary injunction heretofore issued herein are both vacated, such vacation to be effected sixty (60) days from this date.

4. At any time on and after three years from this date, complainant, its successor or assigns, may on motion reinstate this case with all the pleadings and evidence now on file, with the same and like effect as though filed for such subsequent hearing. And each party may then file such additional pleadings and take and
370 file such additional evidence as to each party may be deemed advisable.

5. If complainant elects to appeal from this decree or any part thereof, a supersedeas bond properly conditioned, in the penalty of Five Thousand ($5,000.00), with ample surety, will be approved. But the approval and filing of such bond will only stay said writ of execution for said costs. Any other supersedas than as aforesaid is by this Court denied.

To each, all and every of the foregoing, in so far as adverse, complainant excepts.

Done this August 21, 1912.

(Signed) SMITH McPHERSON, *Judge.*

Filed Aug. 21, 1912. Wm. C. McArthur, —, by Louis J. Adelman, Deputy.

371 And thereafter to-wit: On the 8th day of October A. D. 1912 there was filed in said cause a Notice of Hearing of Application for Modification of the Decree which said Notice is in the words and figures as follows to-wit:

372 In the District Court of the United States for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Notice.

To Defendants in the above entitled action, or to their Solicitors, H. W. Byers and R. O. Brennan:

You are hereby notified that complainant will, on the 8th day of October, 1912, at the hour of 9 o'clock A. M. at the Federal Court room in Council Bluffs, Iowa, submit to the Honorable Smith McPherson, Judge of the said court, an application for the modification of the decree in the above entitled cause, signed on the 21st day of August, 1912, in the following particulars.

1. To so modify the fifth clause of said decree as to permit complainant to supersede and stay the enforcement of the obligation imposed upon it by the said decree to refund on demand of the persons by whom payment was made, all sums of money collected by complainant for gas sold and delivered after the 1st day of January, 1911, in excess of the rate specified in the ordinance of December 27, 1910, until the determination of the appeal from the said decree.

2. To change the third clause of said decree by striking out the words "sixty days" and submitting therefor the words "ninety days."

373 Please take notice and govern yourselves accordingly.

(Signed) W. L. READ,
N. T. GUERNSEY AND
GEO. H. CARR,
Solicitors for Complainant.

(Endorsed:) Filed Oct. 8, 1912. Wm. C. McArthur, Clerk. By Louis J. Adelman, Deputy.

Service of the foregoing notice and receipt of copy acknowledged this 4th day of October, 1912.

(Signed) R. O. BRENNAN &
H. W. BYERS,
Solicitors for Defendants.

374 And thereafter to-wit: On the same day, October 8, 1912, there was filed in said cause an Application for Modification of the Decree, which said Application is in the words and figures as follows to-wit:

375 In the District Court of the United States for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Application for Modification of Decree Rendered Herein on the 21st Day of August, 1912.

To the Honorable Judges of the District Court of the United States for the Southern District of Iowa:

Complainant shows to this honorable court that on the 6th day of January, 1911, there was signed and entered of record in this case an order temporarily restraining defendants from putting in force the ordinance of December 27, 1910, and until the further order of the court, permitting complainant to charge for gas sold and delivered, at the rate of $1.10 per thousand cubic feet, provided that upon all bills paid on or before the 15th day of the month following the month in which the gas was used, a discount of 10¢ per thousand cubic feet should be allowed. Said order of January 6, 1911, contained the following recitals:

"Provided, however, that in the event that it shall be determined by the final decree in this cause that said ordinance of December 27, 1910, is valid, that complainant shall refund on demand by the persons by whom payment was made all sums of money collected by it for gas sold and delivered from and after the first day of January, 1911, in excess of the rate specified in the said ordinance of December 27th, 1910."

Complainant shows to this honorable court that it has, since the entry of said order on the 6th day of January, 1911, charged
376 and received for gas sold and distributed in accordance with the provisions thereof. The several sums paid to complainant by individual consumers in excess of the rates fixed in the ordinance of December 27, 1910, are small, but the aggregate of said sums so collected constitutes a very large amount of money.

In the decree filed herein on the 21st day of August, 1912, is the following provision:

"If complainant elects to appeal from this decree or any part thereof a supersedeas bond properly conditioned in the penalty of Five Thousand Dollars with ample surety, will be approved. But the approval and filing of such bond will only stay said writ of execution for said costs. Any other supersedeas than as aforesaid is by this Court denied."

Complainant intends as soon as possible, to perfect an appeal from said decree, and unless the requirement of said order and decree that it shall refund on demand to the persons by whom payment was made all sums of money collected for gas sold and delivered from and after the first day of January, 1911, in excess of

the rate specified in the said ordinance of December 27th, 1910, be superseded, complainant will be compelled, before the determination of said appeal, to refund on the demand of the persons by whom payment was made, all sums of money collected in excess of the rate specified in said ordinance of December 27th, 1910. In the event that complainant obtains a decree in its favor upon the trial of this case on appeal, and in the event said ordinance of December 27th, 1910, shall be declared invalid, complainant will be unable to recover all or the greater portion of the money so refunded. No obligation ought to rest upon complainant to refund said sum of money until the determination of this case upon appeal, and until it has been adjudicated upon the trial of this case on appeal that the ordinance of December 27th, 1910, is a valid ordinance.

In the Third paragraph of said decree it is provided as follows:

377 "The restraining order and temporary injunction heretofore issued herein are both vacated, such vacation to be effective sixty days from this date."

The vacation of the said order and temporary injunction become effective on the 20th day of October, 1912.

Wherefore, complainant prays that the decree of August 27th, 1912, be so modified that the requirement of said order and decree that it refund on demand the sums of money collected for gas sold and delivered from and after the first day of January, 1911, in excess of the rate specified in said ordinance of December 27th, 1910, may be superseded on such terms and conditions as to bond as may to the court appear just and equitable, and that the provisions of said decree fixing the time when the vacation of the restraining order and temporary injunction heretofore issued herein become effective shall be extended thirty days.

(Signed) W. L. READ,
N. T. GUERNSEY AND
GEO. H. CARR,
Solicitors for Complainant.

(Endorsed:) Filed Oct. 8, 1912. Wm. C. McArthur, Clerk. By Louis J. Adelman, Deputy.

378 And thereafter to-wit: On the same day, October 8th, A. D. 1912, there was filed in said cause a Resistance to the Application for Modification of the Decree, which said Resistance is in the words and figures as follows to-wit:

379 In the District Court of the United States, for the Southern District of Iowa, Central Division.

No. 71-M. Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Resistance to Application for Modification of Decree.

Now come the defendants in the above entitled cause and resist the application of the complainant for a modification of the decree rendered herein on the 21st day of August, 1912, and as grounds for such resistance show to the court:

First. Because the decree in all its provisions is just and proper and fully warranted by the record.

Second. The decree if allowed to stand just as it is will be an end to this litigation.

Third. The record shows that the 90¢ rate for gas will afford the Gas Company more than a fair compensation for its service.

Fourth. There is nothing in the decree that deprives the complainant Gas Company of any right it has under the law to apply to this court for relief whenever conditions justify such application.

Fifth. Under the findings and conclusions of the Master and of your Honor the defendant City is entitled to just such a decree as your Honor has rendered.

Sixth. This cause has been pending now for nearly two years and is the culmination of a contest that has been going on with the Gas Company for nearly twenty years. Both sides were given opportunity to present the case from every angle by both the
380 Master and your Honor, and now to change or modify the decree in such a way as to weaken its force as the final word of this court, or to encourage a continuation of the controversy would be intolerable.

(Signed) R. O. BRENNAN,
H. W. BYERS,
E. C. CARLSON,
Attorneys for Defendants.

(Endorsed:) Filed Oct. 8, 1912. Wm. C. McArthur, Clerk. By Louis J. Adelman, Deputy.

381 And thereafter to-wit: On October 10th A. D. 1912 there was filed in said cause a Decree vacating the Decree of August 21st, 1912, and filed in lieu thereof, which said Decree is in the words and figures as follows to-wit:

382 In the District Court of the United States for the Southern District of Iowa, Central Division.

No. 71-M.

DES MOINES GAS COMPANY, Complainant,
against
CITY OF DES MOINES AND OTHERS, Defendants.

Decree.

Now on this October 10th, 1912, the court being fully advised orders and decrees:

The decree herein filed August 21st, 1912, be and the same is hereby vacated and in lieu thereof the following is ordered, adjudged and decreed.

1. The bill of complaint herein is dismissed with prejudice.

2. The complainant will pay the costs herein made to be taxed by the clerk, which will include monies paid by defendants on account of stenographers and typewriters, and monies paid by defendants on account of Master's compensation and expenses, for which, after forty (40) days, a writ of execution will issue.

3. The restraining order and temporary injunction heretofore issued herein are both vacated; such vacation to be effective on and after November 15th, 1912.

4. At any time on and after three years from this date, complainant, its successors or assigns, may on motion reinstate this case with all the pleadings and evidence now on file, with the same and like effect as though filed for such subsequent hearing. And each party may then file such additional pleadings and take and file such additional evidence as to each party may be deemed advisable.

383 5. If complainant elects to appeal from this decree or any part thereof, a supersedeas bond properly conditioned in the penal sum of Five Thousand ($5,000) Dollars, with ample surety, will be approved; said approval to be by the judge of this court; said bond when thus approved will stay the said writ of execution as to said costs as covered by Paragraph 2 of this decree.

6. It is further decreed that the orders heretofore made as to refund of Ten (10) cents per thousand feet of gas in excess of the rate fixed by the ordinance herein in controversy be superseded, provided the complainant file a bond for that purpose in the penal sum of One Hundred and Fifty Thousand ($150,000) Dollars, properly conditioned with ample surety, to be approved by this court or a judge thereof.

7. Any other supersedeas than those provided for in Paragraphs 5 and 6 of this decree is denied and shall only be allowed by the Supreme Court of the United States or a justice thereof.

8. In the event an appeal is not taken perfected and filed within sixty (60) days of the date hereof, or if said appeal is taken and this decree should be affirmed as to said refund as set forth in Para-

graph 6 of this decree, then the city and all parties claiming such refunds shall present such claims to this court within such time as will be hereafter fixed for allowance. And said city and all defendants and the officers and agents of such city and all persons are prohibited from presenting or urging the same in any other court than this court. And for such hearings this court retains jurisdiction over the parties and the subject matters. Each party excepts to all the foregoing insofar as adverse.

Done this October 10th, 1912.

(Signed) SMITH McPHERSON, *Judge.*

(Endorsed:) Filed Oct. 10, 1912. Wm. C. McArthur, Clerk.

384 And thereafter to-wit: On the 11th day of November A. D. 1912 there was filed in said cause a Petition for appeal and thereafter to-wit: on the 18th day of November A. D. 1912 there was an order made allowing said appeal, which said Petition for Appeal and order allowing same is in the words and figures as follows to-wit:

385 Filed November 11th, 1912. Wm. C. McArthur, Clerk.

In the District Court of the United States in and for the Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,

vs.

CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, CHARLES W. Schramm, John Wesley Ash, Zell G. Roe, and Robert O. Brennan, Respondents.

Prayer for Allowance of Appeal.

Comes now the above named complainant, the Des Moines Gas Company, and conceiving itself to be aggrieved by the final decree heretofore and on or about the 10th day of October, A. D. 1912 made, entered and filed by the said court against it in the above entitled cause, and having filed with the clerk its assignment of errors, does hereby appeal from the said final decree to the Supreme Court of the United States; and it prays that this, its appeal, may be allowed, and that a transcript of the record and proceedings and papers upon which said final decree was made may be transmitted to the Supreme Court of the United States.

DES MOINES GAS COMPANY,

(S'g'd) By GEORGE H. CARR,
WM. L. READ,
N. T. GUERNSEY,
Its Solicitors.

And now, to-wit, on this 18 day of November, A. D. 1912, it is ordered that the appeal be allowed as prayed for.

(S'g'd) WILLIS VAN DEVANTER.

Filed November 20, 1912. Wm. C. McArthur, Clerk.

386 And thereafter to-wit: On the 11th day of November A. D. 1912 there was filed in said cause an Assignment of Errors which said Assignment of Errors is in the words and figures as follows to-wit:

387 In the District Court of the United States in and for the Southern District of Iowa, Central Division.

No. 71-M.

DES MOINES GAS COMPANY, Complainant,

vs.

CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, Respondents.

Assignment of Errors.

And now comes the Des Moines Gas Company and says that in the record and proceedings in the above entitled cause there is manifest error in each and every one of the following particulars:

First. That the court erred in adjudging and decreeing that the bill of complaint in the said cause be dismissed with prejudice.

Second. That the court erred in adjudging and decreeing that the complainant pay the costs of the said suit and in awarding execution therefor.

Third. That the court erred in adjudging and decreeing that the bill of complaint in the said cause be dismissed.

Fourth. That the court erred in adjudging and decreeing that complainant be denied the relief prayed for in its bill of complaint.

Fifth. That the court erred in refusing to adjudge and decree that the ordinance of the City of Des Moines of the 27th of December, 1910, complained of in complainant's bill of complaint, is and was invalid, and void, and erred in refusing to permanently enjoin its enforcement.

Sixth. That the court erred in not adjudging and decreeing that the rates fixed in said ordinance of the City of Des Moines, of December 27, 1910, were and are confiscatory of complainant's property.

388 Seventh. That the court erred in adjudging and decreeing that the Master's report should be approved.

Eighth. That the court erred in adjudging and decreeing that each of the exceptions of complainant, to the master's report, be overruled.

Ninth. That the court erred in adjudging and decreeing that there is a presumption in this case that the rate fixed in the said ordinance of December 27, 1910, is remunerative.

Tenth. That the court erred in adjudging and decreeing that in this case the burden was upon complainant to show that the rate fixed in the said ordinance was not remunerative.

Eleventh. That the court erred in adjudging and decreeing that the restraining order and temporary injunction issued in the said cause prior to the rendition of said final decree be vacated.

Twelfth. That the court erred in adjudging and decreeing that any supersedeas other than what is provided for in paragraphs five and six of the said decree is denied and shall only be allowed by the Supreme Court of the United States, or a justice thereof.

Thirteenth. That the court erred in adjudging and decreeing in the fourth paragraph of the said decree:

"At any time on and after three years from this date, complainant, its successors or assigns, may on motion reinstate this case with all the pleadings and evidence now on file, with the same and like effect as though filed for such subsequent hearing. And each party may then file such addition- pleadings and take and file such additional evidence as to each party may be deemed advisable."

Relating to the Enhanced Value Due to the Enhanced Cost of Reproducing Mains Located in Paved Streets.

Fourteenth. That the court erred in adjudging and decreeing that the estimated cost of reproduction, less depreciation, when taken as a measure of value, is not such estimated cost as of the date of the valuation and subject to the conditions which then existed.

389 Fifteenth. That the court erred in adjudging and decreeing that from the amount of $2,240,928 (which the master found to be the cost of reproducing the physical property, less depreciation, without taking into account the element of value usually known as going value), there should be deducted the sum of $140,000, because this did not represent an expense incurred in the original construction of the property; said $140,000 being the estimated additional cost, less depreciation, which would be incurred on account of removing and replacing paving in the reproduction of mains in streets which were paved at the date of the valuation, but were not paved when the mains in them were originally laid.

Sixteenth. That the court erred in adjudging and decreeing that complainant is not entitled to earn a fair and reasonable return upon the present value of that portion of its investment and property which consists of mains under paved streets, where the pavement was put down after the mains were laid.

Seventeenth. That the court erred in adjudging and decreeing that the twelfth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twelfth. That the master has in said report stated and certified that there should be deducted from what is called the 'total physical value' as found by him, the sum of $140,000, representing the cost of removing and replacing pavements, where pavements existed over the mains at the date as of which the valuation is made, but where no such pavements existed at the dates when the mains were laid;

390 whereas, the master ought to have found that no deduction should be made on this account and that the value of the mains should be determined with reference to existing condi-

tions and not with reference to the conditions which existed at the time the mains were laid."

Eighteenth. That the court erred in adjudging and decreeing that the thirteenth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirteenth. That the master has in said report stated and certified as to the said item of $140,000:

'But where pavements are laid after the mains are installed, they have expended no money in taking up and replacing pavements. An allowance, therefore, makes reproduction the ultimate question, and not the reasonable value of the mains, unless it further appear that the value of the mains are enhanced thereby to the extent of the cost of taking up and replacing pavements, which is not shown in this case. When the whole evidence is considered, the contrary is shown;'

whereas, the master ought to have found that the value of the mains in question as of the date of the valuation is determined, not by what may have been expended in installing the said mains, but by what it would cost to reproduce them, less the proper charge on account of depreciation, and ought to have found that changes in conditions since the mains were laid resulting in enhancing the cost of reproducing them, result in corresponding enhancements in the value of the existing mains, and ought to have found that the evidence which shows that because of the placing of pavement over these mains, the cost of reproducing them would be enhanced $140,000, showed that the value of these mains had been enhanced."

Nineteenth. That the court erred in adjudging and decreeing that the fourteenth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fourteenth. That in the consideration of the said item of $140,000, the master has in his said report adopted as the basis for determining the present value of the mains in question as to the matter of paving, their original cost less depreciation, and as to other items their cost of reproduction, less depreciation; whereas, he should, in order to ascertain present value, in view of the difference in the conditions, existing at present and when said mains were laid, have consistently applied the cost of reproduction, less depreciation, as to all of the items going to the value of the mains."

391 Relating to Going Value.

Twentieth. That the court erred in adjudging and decreeing that the master found that the value of the complainant's property is $2,240,928, and should have determined that the master found that the said amount represented the value of the property in question exclusive of the item of going value found by the master to be $300,000, and that the master found that the total value of the property in question was the sum of $2,540,000.

Twenty-first. That the court erred in adjudging and decreeing that the eighteenth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Eighteenth. That the master has, in said report, stated and certified that:

'The evidence followed strictly might require me to make it higher, could my mind rest satisfied that the 'Going Value' of this concern is worth more, but I cannot feel satisfied that such is the case and regard $300,000 as every dollar it is worth over and above its physical value, and in my judgment, it is worth that much more than a plant would be that had to develop its business;'

whereas, the master ought to have found the said item of going value to be not less than the sum of $530,932, as clearly shown by the preponderance of the evidence."

Twenty-second. That the court erred in adjudging and decreeing that the nineteenth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Nineteenth. That the master has in said report stated and certified:

'The opinion in the recent case of the Cedar Rapids Gas Co. vs. Cedar Rapids, adds additional emphasis thereto. Not only so, but it also renders it extremely doubtful that 'Going Value' will be included in valuation of such a plant as the basis of return, beyond the fact that it is in 'successful operation.' That would exclude the sum of $300,000 estimated in this case, on the grounds that when the ordinance was enacted, it already possessed a well developed and paying business.

In my judgment, after considering the able and thorough arguments of counsel, that it is decisive of the question, and holds that 'Going Value' should not be considered in determining the
392 basis upon which the complainant is entitled to have its return reckoned, and feel that it is my duty to so state;'

whereas, the master ought to have found that the said opinion of the Supreme Court of the United States does not hold that going value should be excluded in determining the basis upon which the complainant is entitled to have its return reckoned, but on the contrary, recognizes the fact that going value should be considered in determining the said basis."

Twenty-third. That the court erred in adjudging and decreeing that the twentieth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twentieth. That the master has in said report stated and certified, in substance, that the fact that the property in question is a going concern, characterized by an established business, with a large number of consumers attached to it, and a developed business, should not be taken into account; whereas, the master ought to have found that in ascertaining the value of the complainant's

property upon which the rate of return afforded by the ordinance in question should be computed, all of the elements affecting that value should be taken into account, including whatever is contributed by the fact of the connection of the items, making a complete and operating plant."

Twenty-fourth. That the court erred in adjudging and decreeing that the twenty-first exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-first. That the master has in said report stated and certified in effect that the value of the complainant's property as of the date of the inquiry, upon which its return should be computed, is the mere cost of purchasing the land, constructing the buildings, putting in the machinery and installing the mains, meters and services with the working capital—in other words, the mere cost of reproducing the physical property, less depreciation; whereas, the master ought to have found that in order to ascertain said value there must be taken into account the additional value created by the fact of many connections with buildings, and actual earnings, including whatever is contributed by the fact of the connection of the items making up a complete and operating plant."

Twenty-fourth. That the court erred in adjudging and decreeing that the twenty-second exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-second. That the master has in said report in
393 effect, stated and certified that the item designated by him as 'going value' is something separate and apart from the physical property; whereas, he ought to have found that it is an element contributing to the value of each tangible part of the property and that its existence is solely as a characteristic of the structure and that the structure is a structure whose value is affected by the fact that it is in use.

Relating to Specific Items in Valuation.

Twenty-sixth. That the court erred in adjudging and decreeing that the first exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"First. That the master in said report stated and certified that the value of the real estate in controversy is the sum of $150,000.00; whereas, the master ought to have found that the value of the said real estate is not less than the sum of $242,961.00."

Twenty-seventh. That the court erred in adjudging and decreeing that the fifth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fifth. That the said master has in said report stated and certified that the base value sustained by the clear weight of the evidence in this case is as follows:

Buildings, Exhibit "C-*a*"	$66,528
Contents of Buildings, Exhibit "G"	137,892
Yard Structures, Exhibit "H"	206,728
Miscellaneous, Exhibit "I"	57,912
Distribution System, Exhibit "L"	1,505,966
Total Base Figures	1,975,026

whereas, the said master ought to have found that the said base values were as shown by the clear preponderance of the evidence, not less than:

Buildings	$71,283
Contents of Buildings	150,593
Yard Structures	216,189
Miscellaneous	71,671
Distribution System	1,561,111
Total Base Figures	$2,070,848"

Twenty-eighth. That the court erred in adjudging and decreeing that the eighth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Eighth. That the master has in said report stated and certified: 'The organization expenses are shown to have been the sum of $6,922, and after careful consideration of the case, it is my conclusion that 15 per cent in addition to the cost of organization is a fair and just allowance therefor';

whereas, the master ought to have found that not less than
394 25 per cent should be added to the base figures or cost of labor and material in order to cover and provide for what he has denominated 'overhead charges.'"

Twenty-ninth. That the court erred in adjudging and decreeing that the ninth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Ninth. That the master has in said report refused to allow any overhead charges upon the real estate; whereas, he should have allowed such charges and have added them to the value of the real estate in an amount not less than $40,000.00; including the expense of optioning the real estate and testing it and examining the title and for engineering advice as to its availability and for interest upon its cost during construction and for taxes upon it during construction."

Thirtieth. That the court erred in adjudging and decreeing that the tenth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Tenth. That the master in the said report stated and certified that the per cent condition of the entire physical plant was at the

date of the valuation only 85.3, making the depreciation thereon $333,878; whereas, the clear preponderance of the testimony shows that the per cent condition of the said plant was at that time not less than 88.2 per cent, and that the depreciation thereon was much less than charged against it by the master."

Thirty-first. That the court erred in adjudging and decreeing that the eleventh exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Eleventh. That the master has, in said report, stated and certified that the total physical value of the property in question is the sum of $2,240,928; whereas, the master ought to have found that the said total physical value, as shown by the clear preponderance of the evidence, was not less than $2,653,441."

Relating to a Fair Return.

Thirty-second. That the court erred in adjudging and decreeing that the rate of return to which the complainant is entitled is not a matter of fact which may be shown by testimony with the same definiteness and certainty as other controverted matters of fact.

395 Thirty-third. That the court erred in adjudging and decreeing that the twenty-sixth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-sixth. That the master has in said report stated and certified that the complainant is entitled to a return of only 8 per cent upon the amount of its investment; whereas, the master ought to have found that the evidence shows clearly and beyond a reasonable doubt that the complainant is entitled to a return of not less than ten per cent upon the amount of its investment."

Relating to the Future Cost of Manufacturing and Distributing Gas.

Thirty-fourth. That the court erred in adjudging and decreeing that the twenty-seventh exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-seventh. That the master has in said report stated and certified:

'Complainant claims that in estimating the net profit for manufacturing and distributing gas to its customers, that there should be taken into account and allowance made for the necessary expenses which it has and will incur in connection with the establishment of rates in this action. In other words, its expenses in this action, not covered by the costs of suit. In my judgment, no allowance therefor can be made in determining the future cost of gas for the following reasons;'

whereas, the master ought to have found that the necessary expense incurred by the complainant in connection with rate regulations and

litigation arising therefrom is a part of its necessary operating expenses and a factor which should be taken into account in determining the operating expenses of the company in the future."

Thirty-fifth. That the court erred in adjudging and decreeing that the thirty-ninth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Thirty-ninth. That the master has in said report in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever for the expenses which the complainant has incurred and will incur in connection with litigation with reference to rates; whereas, the master ought to have found that the said expenses are a necessary and inevitable part of the operating costs of the complainant, and ought to have made a proper allowance therefor."

396 Thirty-sixth. That the court erred in adjudging and decreeing that the twenty-eighth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-eighth. That the master has in said report stated and certified in substance, that the amount of $10,000 per annum paid by the complainant to certain of its officers, who are also officers of The United Gas Improvement Company, should not be taken into account in estimating the amount of operating expenses of the complainant; whereas, the master ought to have found that the services on account of which such salaries are paid are necessary services and that such salaries were expenses necessarily incident to the operation of the complainant's plant and that the amounts paid on account of such services were necessary factors in determining the operating expenses of the complainant for the future."

Thirty-seventh. That the court erred in adjudging and decreeing that the twenty-ninth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Twenty-ninth. That the master has in said report stated and certified with reference to the services covered by the salaries referred to in the preceding exception:

'There is no evidence that shows that the services so rendered are in fact worth the amount represented by these salaries, and in my judgment, their allowance and payment would not be prima facie evidence thereof;'

whereas, the master ought to have found that the evidence shows that the services in question were in fact worth the amount represented by the salaries referred to and that their allowance and payment was prima facie evidence thereof."

Thirty-eighth. That the court erred in adjudging and decreeing that the thirtieth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirtieth. That the Master has in said report stated and certified

with reference as to the services and salaries referred to in the two last preceding exceptions:

'There is, therefore, no basis upon which an allowance can be made therefor, in determining the future cost of producing and distributing gas by the complainant company to its consumers, and, hence, no allowance is made therefor. This amounts to 1.88 cents per M. C. F. of gas;'

whereas, the master ought to have found that under the testimony an allowance should have been made for the salaries in question
397 in determining the future cost of producing and distributing gas by the complainant."

Thirty-ninth. That the court erred in adjudging and decreeing that the thirty-eighth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirty-eighth. That the master has in said report in the estimates of the future cost to the complainant of producing and distributing gas included nothing whatever representing the expense which will be incurred by the complainant in the immediate future on account of contributions to the Greater Des Moines Committee, or for like purposes; whereas, the master ought to have found that the said items of expense, either in the form of contributions to the Greater Des Moines Committee or in some other form, will in the future be necessary items of the operating expenses of the complainant's plant, and ought to have made a proper allowance therefor."

Fortieth. That the court erred in adjudging and decreeing that the thirty-second exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirty-second. That the master has in said report stated and certified:

'The ordinary insurance, which the company has been carrying, should and has been, included in the operating expenses. But beyond this none other should be considered. In determining the rate of return, the hazards of the business are all eliminated by casualty insurance, then, the rate of return should be diminished. The exhibits of complainant on this claim No. 89, have been given no consideration beyond fixing the rate of return;'

whereas, the master ought to have found that all items of insurance were a part of the operating cost of the complainant, and ought to have found further that no part of said operating costs should be paid out of the return which should be applicable solely to interest and profits."

Forty-first. That the court erred in adjudging and decreeing that the fifty-third exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fifty-third. That the master has in said report stated and certified:

'The rate of insurance against loss by accidents is about 1.42 per M. C. F. and the operating expenses show about .38c for past dam-

age claims, which in round numbers 1.04 cents per M. C. F.,
398 and this included as part of hazards in fixing the rate of return, but should the rate of return be reduced, then, this ought to be included in the cost of gas;'

whereas, the master ought to have found that all of the hazards incident to the transaction of the business should be treated as a part of the operating costs, and that none of them should be paid out of the return allowed upon the investment."

Forty-second. That the court erred in adjudging and decreeing that the forty-first exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Forty-first. That the master has, in said report in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever for the increase in the operating costs of the complainant which the testimony shows will ensue from the fact that the ordinance in controversy provides no penalty for failure on the part of consumers to pay promptly; whereas, the master ought to have found that the failure of the ordinance in question to provide for such a penalty would increase the operating costs of the complainant in the future, and in his estimates of the future results of its business, ought to have taken this factor into account."

Forty-third. That the court erred in adjudging and decreeing that the thirty-seventh exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirty-seventh. That the master has in said report stated and certified that 6.67 cents per thousand feet of gas sold is a proper allowance in determining the future results of the operation of complainant's plant for depreciation; whereas, the master ought to have found that on account of such depreciation there should be an allowance of not less than 8 cents per thousand cubic feet of gas sold."

Forty-fourth. That the court erred in adjudging and decreeing that the fortieth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fortieth. That the master has, in said report, in the estimates of the future cost to the complainant of producing and distributing gas, included nothing whatever on account of the radical increase in the complainant's taxes, which the master finds is imminent; whereas, the master ought to have found that on account of such increase in taxes this item of the operating costs of the complainant will be larger in the future than it has been in the past, and should have treated the same accordingly."

399 Forty-fifth. That the court erred in adjudging and decreeing that the thirty-third exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirty-third. That the master has in said reports, in effect,

stated and certified that based upon the operating costs of the year 1910, for the purpose of estimating the operating costs of the complainant in the future, 62.98 cents should be taken as the cost of manufacturing and distributing gas, not including depreciation; whereas, the master ought to have found that based upon the experience of the said year the actual operating costs of the said year should have been so taken, without deduction, that is, 66.28 cents, for the purpose of estimates as to the future."

Forty-sixth. That the court erred in adjudging and decreeing that the thirty-fourth exception of the complainant to the report of the Special Master in the said cause be overruled, which exception was as follows:

"Thirty-fourth. That the master has in said report in effect, stated and certified, that the estimates of the future operations of the complainant's plant, based upon the results of the first ten months of the year 1911 should be based, not including depreciation, upon operating cost of 61.73 cents; whereas, he ought to have found that such estimate should be based upon the actual operating costs for said period, not including depreciation, that is, 77.14 cents."

Forty-seventh. That the court erred in adjudging and decreeing that the thirty-fifth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Thirty-fifth. That the master has in said report stated and certified that the estimates as to the future earnings of the complainant's plant, based upon the operation of the five years, from 1906 to 1910, inclusive, should adopt as the factor for the cost per thousand feet of gas, 62.58 cents; whereas, the said master ought to have found that for such estimates there should have been taken as such factor the actual cost of manufacturing and distributing gas for such period, not including depreciation, which was 65.34 cents."

Forty-eighth. That the court erred in adjudging and decreeing that the thirty-sixth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

400 "Thirty-sixth. That the master has in said report, in effect, stated and certified that the lowest cost of manufacturing and distributing gas, not including depreciation, for any year in the five-year period preceding January 1st, 1911, is a proper basis to adopt for the purpose of estimating the results of the operations of the company in the immediate future; whereas, the master ought to have found that such estimates should be based upon an average of such operating costs so as to eliminate the results of abnormal conditions."

Forty-ninth. That the court erred in adjudging and decreeing that the forty-fifth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Forty-fifth. That the master has in said report predicated his estimates as to the results of the future operations of the complainant's plant upon estimated operating costs which are lower than the actual operating cost of the complainant at the time that the

estimates were made, and are lower than the average of its actual operating costs for the five years preceding the period covered by such estimates; whereas, the master ought to have used as a factor in making the said estimates the average of the complainant's operating costs for the five years preceding the day when the ordinance in question was to become effective with such adjustments thereof as are required in order to make a proper allowance for the increases in the complainant's operating costs which the testimony shows will be inevitable in the immediate future."

Fiftieth. That the court erred in adjudging and decreeing that the fifty-sixth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fifty-sixth. That the master has in said report stated and certified that:

'These conditions lead me to believe that with economy and care the cost may be reduced below 60 cents, as it was in the year ending February 28, 1909, without detriment to the service. At least the future cost of gas is not clear and satisfactory to me. It is true that in this matter we are entering the realm of prophesy and none of us have that gift. What a trial under the present rates would produce is not before us and cannot be determined until it is so tried, only the past throws any light upon it;'

whereas, the master ought to have found that there is no fact or circumstance shown by the evidence from which a just or reasonable probability can be inferred that the future cost of gas will be less than the average cost for the five-year period considered; and ought to have found that on the contrary, the facts exclude any
401 just or reasonable inference that the complainant's future operating cost will be less than such costs in the past."

Fifty-first. That the court erred in adjudging and decreeing that the forty-seventh exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Forty-seventh. That the master has in said report in connection with the investigation of the probable increase of sales of gas in the future, certified and found:

'The only thing in the past history of the plant that throws any light on the question is the table on schedule 4 of defendants' exhibit 30, a part of which has already been given;' whereas, the master ought to have found that the complainant's exhibits showing the history of the complainant's property and of the development of its business for the past twenty-five years, and showing also the development of the city of Des Moines during the same period, all tend to throw light upon this question."

Fifty-second. That the court erred in adjudging and decreeing that the forty-eighth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Forty-eighth. That the master has in said report stated and certified:

'While a slight increase in consumption may result from a reduction of ten cents per M. C. F. in price, in my judgment, it is much more apt to result in an increase of customers, and the table in schedule 4 very clearly shows it, in the increase thereof, in proportion to the inhabitants of the city, as shown by the first column on the right of the table;'

whereas, the master ought to have expressly and clearly limited said finding by the statement that such increase in customers could only come through an increase in the population of the city of Des Moines."

Fifty-third. That the court erred in adjudging and decreeing that the sixty-seventh exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Sixty-seventh. That the master has in said report stated and certified that:

'So far as new customers are concerned, the estimates made are reasonably certain and these estimates (referring to the esti-
402 mates of future net revenue for the years 1911, 1912, 1913 and 1914 showing deficits each year), are made with reference to them. None are made with reference to the increase from existing customers;'

whereas, the master ought to have found distinctly and in this connection that it is shown by a preponderance of the testimony beyond any just or fair doubt that a reduction of 10 cents in the rate for gas would not produce any increased consumption by existing customers of the complainant."

Fifty-fourth. That the court erred in adjudging and decreeing that the sixty-eighth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Sixty-eighth. That the master in his supplemental report has stated and certified that:

'Third. In response to Interrogatories Nos. 3 and 4, my report gives my estimate so far as new customers are concerned, but beyond that, there is no evidence, upon which an estimate can be made, that would be of any greater value than a mere guess and the same answer is made to Interrogatories 5, 6, 7 and 8;'

whereas, the master ought to have found that the evidence shows clearly and satisfactorily that it would be impossible for there to be such an increase in the sales of gas to either old or new customers as to render the 90 cent rate remunerative."

Fifty-fifth. That the court erred in adjudging and decreeing that the sixty-ninth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Sixty-ninth. The master has in said report stated and certified that:

'Third. In response to Interrogatories Nos. 3 and 4, my report gives my estimate so far as new customers are concerned, but be-

yond that, there is no evidence, upon which an estimate can be made, that would be of any greater value than a mere guess, and the same answer is made to Interrogatories 5, 6, 7 and 8;'

whereas, the master ought to have found that the testimony as to the population of the city of Des Moines, and as to the history of the complainant's plant and business, including the effect upon sales to existing consumers of numerous decreases in rates, renders it clear that it would be impossible in view of the population of Des Moines for the sales to so increase as to afford to the complainant, a fair return at the 90-cent rate."

Relating to Additional Investment to Provide for Increased Sales.

403 Fifty-sixth. That the court erred in adjudging and decreeing that the forty-fourth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Forty-fourth. That the master has in said report stated and certified in substance that the increase in the investment in the complainant's distribution system required on account of the increased sales which are anticipated in the future, will be at the rate of $2.00 per thousand cubic feet of increase in such sales; whereas, the master ought to have found that increased sales would require increased investment at the rate of not less than $4.50 for each thousand feet of such increased sales."

Relating to the Master's Conclusions.

Fifty-seventh. That the court erred in adjudging and decreeing that the fifty-eighth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Fifty-eighth. That the master has in said report stated and certified that:

'Should the court hold that the $140,000 for taking up and replacing mains where none existed at the time the mains were laid, then a decree for the complainant would be imperative, should 'going value' be included in the basis for a return;'

whereas the master ought to have held that both the $140,000 item referred to and going value should be included in the basis for a return, and ought to have found that a decree for the complainant is imperative."

Fifty-eighth. That the court erred in adjudging and decreeing that the fifty-ninth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Fifty-ninth. That the master has in said report stated and certified that:

'Should the court hold that 'salaries general' and the contribution to the Greater Des Moines Committee be included in the future cost

of gas, then a like result should follow. So, also, would rate regulation require a like result, should it be held a proper matter to be considered and 2 cents per M. C. F. be allowed therefor;'

whereas, the master ought to have found that the said items are necessarily included in the future cost of gas, and therefore he should have found that a decree for the complainant is imperative."

404 Fifty-ninth. That the court erred in adjudging and decreeing that the fiftieth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Fiftieth. That the master has in said report stated and certified as a conclusion of law that:

'This action having been brought and a temporary injunction granted restraining the enforcement of the ordinance without having first tried the effect of the rates therein prescribed, the complainant must establish by clear and satisfactory evidence that such rates are inadequate and confiscatory, and if upon the whole evidence there remains a reasonable doubt of the correctness of complainant's contention, then the bill should be dismissed without prejudice to a future action, and complainant required to try the same before instituting another action;'

whereas, the master ought to have found as a matter of law, that the complainant is only bound to sustain the correctness of the ultimate facts upon which its contention is founded by clear and satisfactory evidence."

Sixtieth. That the court erred in adjudging and decreeing that the fifty-first exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Fifty-first. That the master has in said report stated and certified as a conclusion of law that:

'If, however, upon the whole case, there remains no reasonable doubt of the correctness of complainant's contention that the rates prescribed by the ordinance, will not afford an adequate rate of return, either in whole or in part, then it is entitled to have the injunction made perpetual, and the ordinance annulled as confiscatory;'

whereas, the master ought to have found as a conclusion of law that if upon the whole case the correctness of complainant's contention that the rates prescribed by the ordinance will not afford an adequate rate of return, either in whole or in part.

appears by clear and satisfactory evidence, then it is entitled to have the injunction made perpetual and the ordinance annulled as confiscatory."

Sixty-first. That the court erred in adjudging and decree-
405 ing that the sixty-sixth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Sixty-sixth. That the master has in said report stated and certified that:

'While this case is to the border line, I cannot say on the whole case that the evidence, beyond any just and fair doubt, satisfies me that the rates will prove confiscatory should the ordinance be put into effect and an actual test thereof be made;'

whereas, the master ought to have found and certified that there is no evidence which tends to indicate or which could afford the basis for a fair assumption that there will be any material increase in the consumption of gas, by existing consumers sufficient to alter or modify the results of operation under the ordinance in question as found; and ought to have found further that beyond any just or fair doubt the ordinance in controversy if enforced will be confiscatory in its effect."

Sixty-second. That the court erred in adjudging and decreeing that the sixty-third exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

"Sixty-third. That the master has in said report erred in finding that the testimony does not show clearly and satisfactorily that the rates fixed by the proposed ordinance will not afford to the complainant a fair return upon the present actual value of the property constituting its investment and would not afford such return upon such value at the date when the ordinance in question was to go into effect."

Sixty-third. That the court erred in adjudging and decreeing that the sixty-fourth exception of the complainant to the report of the special master in the said cause be overruled, which exception was as follows:

"Sixty-fourth. That the master has in said report in effect certified and found that the material question is whether in the remote future the rates fixed by the ordinance in controversy may not afford to the complainant a fair return; whereas the only material question is whether those rates at the time the said ordinance purported to go into effect, and at the present time will afford to the complainant a reasonable and fair return upon the value of its property devoted to the use of the public."

Sixty-fourth. That the court erred in adjudging and decreeing that the sixty-fifth exception of the complainant to the report of the special master in said cause be overruled, which exception was as follows:

406 "Sixty-fifth. That the master has in said report stated and certified that there should be a decree in this case dismissing the complainant's bill without prejudice; whereas, the master ought to have found that there should be a decree annulling the ordinance in controversy."

Sixty-fifth. That the court erred in adjudging and decreeing that the master found that a 90¢ rate is sufficiently high for a sufficient return to the gas company, and should have found that the master determined that the testimony was not sufficient to enable him to

find whether said rate would be confiscatory or not; and that therefore the master recommended the bill should be dismissed without prejudice to permit a trial of the rates.

Sixty-sixth. That the court erred in adjudging and decreeing that the bill of complaint in the said cause be dismissed with prejudice upon the merits. If it should be finally held that the complainant is not entitled to a decree as prayed, still the bill should not be dismissed upon the merits, but should be dismissed without prejudice to the right of the complainant to institute another suit if a trial of the rates in question should warrant it.

Wherefore the appellant and complainant prays that said final decree of said United States District Court for the Southern District of Iowa Central Division be reversed, and that the appellant and complainant have the relief prayed for in its bill of complaint in said cause.

DES MOINES GAS COMPANY,
(S'g'd) By GEORGE H. CARR,
WM. L. READ,
N. T. GUERNSEY,
Its Solicitors.

(S'g'd) GEORGE H. READ,
(S'g'd) WM. L. READ,
(S'g'd) N. T. GUERNSEY,
Solicitors for Appellant.

(Endorsed:) Filed November 11th, 1912. Wm. C. McArthur, Clerk.

407 And thereafter to-wit: On the same day November 11th A. D. 1912 there was filed in said cause a Prayer for Reversal which said prayer for reversal is in the words and figures as follows to-wit:

408

#71-M.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, CHARLES W. Schramm, John Wesley Ash, Zell G. Roe, and Robert O. Brennan, Respondents.

Prayer for Reversal.

To the Honorable Supreme Court of the United States:

Now comes the Des Moines Gas Company and prays for a reversal of the final decree of the District Court of the United States for the southern district of Iowa, made and entered in the above entitled

cause in the said court on or about the 10th day of October, A. D. 1912.

DES MOINES GAS COMPANY,
(S'g'd) By GEORGE H. CARR,
WM. L. READ,
N. T. GUERNSEY,
Its Solicitors.

(Endorsed:) Filed November 11, 1912. Wm. C. McArthur, Clerk.

409 And thereafter to-wit: On the 20th day of November A. D. 1912, there was filed in said cause a Bond on Appeal which said Bond is in words and figures as follows to-wit:

Know all men by these presents: That we, Des Moines Gas Company, a corporation organized under the laws of the state of Iowa, with its principal place of business in the city of Des Moines in the said state, as principal, and United States Fidelity & Guaranty Company of Baltimore, Md., as surety, are held and firmly bound unto the City of Des Moines, James R. Hanna, John McVicar, Charles W. Schramm, John Wesley Ash, Zell G. Roe and Robert O. Brennan in the sum of five thousand dollars ($5000) for payment of which well and truly to be made, we bind ourselves, and each of us, and the successors of each of us, jointly and severally firmly by these presents.

Sealed with our seals, and dated the fourth day of November, A. D. 1912.

The foregoing obligation is, however, upon the following express condition:

Whereas, the above named Des Moines Gas Company has prosecuted an appeal to the Supreme Court of the United States to reverse the final decree rendered in the above entitled suit by the District Court of the United States for the Southern district of Iowa, central division, on or about the 10th day of October, A. D. 1912.

Now, therefore, the condition of this obligation is such that if the above named Des Moines Gas Company shall prosecute said appeal to effect and promptly pay all costs which may be adjudged against it upon the final determination of this suit, if it shall fail to make said appeal good, then this obligation shall be void; otherwise the same shall be and remain in full force and effect.

[Des Moines Gas Co. Seal.]

DES MOINES GAS COMPANY,
(S'g'd) By JANSEN HAINES, *President.*

Attest:
W. B. KEFFER,
Assistant Secretary.

[Surety Company Seal.]

THE UNITED STATES GUARANTY AND FIDELITY CO.,
(S'g'd) By C. BIRD GOULD,
Attorney in Fact.

410 Approved Nov. 18, 1912.
(S'g'd) WILLIS VAN DEVANTER,
Associate Justice.

(Endorsed:) Filed November 20th, 1912. Wm. C. McArthur, Clerk.

411 *Power of Attorney.*

15279.

Know all Men by these Presents: That the United States Fidelity and Guaranty Company, a corporation organized and existing under the laws of the State of Maryland, and having its principal office at the City of Baltimore, in the State of Maryland, does hereby constitute and appoint C. Bird Gould and George H. Schaeffer of the City of Des Moines, State of Iowa, its true and lawful attorneys in and for the States of Iowa and Nebraska for the following purposes, to wit:

To sign its name as surety to, and to execute, seal and acknowledge any and all bonds, and to respectively do and perform any and all acts and things set forth in the resolution of the Board of Directors of the said United States Fidelity and Guaranty Company, a certified copy of which is hereto annexed and made a part of this Power of Attorney; and the said United States Fidelity and Guaranty Company, through us, its Board of Directors, hereby ratifies and confirms all and whatsoever either the said C. Bird Gould or the said George H. Schaeffer may lawfully do in the premises by virtue of these presents.

In Witness Whereof, the said United States Fidelity and Guaranty Company has caused this instrument to be sealed with its corporate seal, duly attested by the signatures of its Vice-President and Assistant Secretary, this 1st day of September, A. D. 1912.

[SEAL.] UNITED STATES FIDELITY AND GUARANTY COMPANY,
(Sig.) By W. W. SYMINGTON,
Vice-President.
(Sig.) WM. T. MORGAN,
Assistant Secretary.

STATE OF MARYLAND,
Baltimore City, ss:

On this 1st day of September, A. D. 1912, before me personally came W. W. Symington, Vice-President of the United States Fidelity and Guaranty Company, and Wm. T. Morgan, Assistant Secretary of said Company, with both of whom I am personally acquainted, who being by me severally duly sworn, said that they resided in the City of Baltimore, Maryland, that they, the said W. W. Symington and Wm. T. Morgan were respectively the Vice-President and Assistant Secretary of the said United States Fidelity and Guaranty Company, the corporation described in and which executed

the foregoing Power of Attorney; that they each knew the seal of said corporation; that the seal affixed to said Power of Attorney was such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that they signed their names thereto by like order as Vice-President and Assistant Secretary, respectively of said Company.

My commission expires the first Monday in May, A. D. 1914.

[SEAL.] (Sig.) WM. J. McFEELY, JR.,
Notary Public.

STATE OF MARYLAND,
Baltimore City, set:

I, Stephen C. Little, Clerk of Superior Court of Baltimore City, which Court is a Court of Record, and has a seal, do hereby certify that Wm. J. McFeely, Jr., Esquire, before whom the annexed affidavits were made, and who has thereto subscribed his name, was, at the time of so doing, a Notary Public of the State of Maryland, in and for the City of Baltimore, duly commissioned and sworn and authorized by law to administer oaths and take acknowledgments, or proof of deeds to be recorded therein. I further certify that I am acquainted with the handwriting of the said Notary, and verily believe the signature to be his genuine signature.

In Testimony Whereof, I hereto set my hand and affix the seal of the Superior Court of Baltimore City, the same being a Court of Record, this 1st day of September, A. D. 1912.

[SEAL.] (Sig.) STEPHEN C. LITTLE,
Clerk of the Superior Court of Baltimore City.

Copy of Resolution.

That, Whereas, it is necessary for the effectual transaction of business that this Company appoint agents and attorneys with power and authority to act for it and in its name in States other than Maryland, and in the Territories of the United States and in the Provinces of the Dominion of Canada and in the Colony of Newfoundland.

Therefore, be it Resolved, that this Company do, and it hereby does, authorize and empower its President or either its Vice-Presidents in conjunction with its Secretary or one of its Assistant Secretaries, under its corporate seal, to appoint any person or persons as attorney or attorneys-in-fact, or agent or agents of said Company, in its name and as its act, to execute and deliver any and all contracts guaranteeing the fidelity of persons holding positions of public or private trust, guaranteeing the performance of contracts other than insurance policies and executing or guaranteeing bonds and undertakings, required or permitted in all actions or proceedings, or by law allowed, and

Also in its name and as its attorney or attorneys-in-fact, or agent or agents to execute and guarantee the conditions of any and all bonds, recognizances, obligations, stipulations, undertakings or anything in the nature of either of the same, which are or may by law, municipal or otherwise, or by any Statute of the United States or of

any State or Territory of the United States or of the Provinces of the Dominion of Canada or of the Colony of Newfoundland or by the rules, regulations, orders, customs, practice or discretion of any board, body, organization, office or officer, local, municipal or otherwise, be allowed, required or permitted to be executed, made, taken, given, tendered, accepted, filed or recorded, for the security or protection of, by or for any person or persons, corporation, body, office, interest, municipality or other association or organization whatsoever, in any and all capacities whatsoever, conditioned for the doing or not doing of anything or on any conditions which may be provided for in any such bond, recognizance, obligation, stipulation, or undertaking, or anything in the nature of either of the same.

I, Wm. T. Morgan, Assistant Secretary of the United States Fidelity and Guaranty Company, hereby certify that at a regular meeting of the Board of Directors of said Company, duly called and held at the office of the Company, at the City of Baltimore, on the 11th day of July, A. D. 1910, at which was present a quorum of said Directors, duly authorized to act in the premises, resolutions were passed and entered on the minutes of said Company, of which resolutions the foregoing is a true copy and of the whole thereof.

In Testimony Whereof, I have hereunto set my hand and the seal of the United States Fidelity and Guaranty Company, this 1st day of September, A. D. 1912.

[SEAL.] (Sig.) WM. T. MORGAN,
Assistant Secretary.

I, Wm. T. Morgan, Assistant Secretary of the United States Fidelity Trust and Guaranty Company, do hereby certify that the above and foregoing is a full, true and correct copy of the original power of attorney given by said Company to C. Bird Gould and George H. Schaeffer of Des Moines, Iowa, authorizing and empowering them to sign bonds as therein set forth.

Given under my hand and the seal of said Company, at Baltimore, Maryland, this 2nd day of September, A. D. 1912.

[Seal United States Fidelity & Guaranty Company. Incorporated 1896.]

WM. T. MORGAN,
Assistant Secretary.

(Endorsed:) Filed November 20th, 1912, Wm. C. McArthur, Clerk.

[Endorsed:] Certified Copy No. 15279. General Power of Attorney from United States Fidelity Company, to C. Bird Gould, Des Moines, Iowa. 9-1-12. United States Fidelity and Guaranty Company, Baltimore.

412 And thereafter to-wit: On the 23rd day of November A. D. 1912 there was filed in said cause a Praecipe for a Transcript of the Record on Appeal which said praecipe is in the words and figures as follows to-wit:

413 In the District Court of the United States, Southern District of Iowa, Central Division.

No. 71-M. In Equity.

THE DES MOINES GAS COMPANY
vs.
CITY OF DES MOINES et al.

To the Clerk:

You are requested to take a transcript of record to be filed in the Supreme Court of the United States, pursuant to an appeal allowed in the above entitled cause and to include in such transcript of record the following, and no other papers or exhibits, to-wit:

Pleadings, Orders, etc.:

Bill of Complaint.
Motion for preliminary Injunction.
Views of the Trial Court—Smith McPherson, Judge.
Temporary Restraining Order.
Præcipe for Appearance, Defendants' Solicitor.
Notice of Hearing for Temporary Injunction and Leave to Amend Bill of Complaint, with Acceptance of Service thereof by Defendant's Solicitor.
Order Granting Leave to Amend Bill of Complaint.
Amendment to Bill of Complaint.
Affidavit of John H. Blair.
Affidavit of Simon Cassidy.
414 Affidavit of William A. Baehr.
Affidavit of Jansen Haines.
Affidavit of Jansen Haines.
Affidavit of F. M. Hubbell.
Affidavit of B. F. Kauffman.
Joint and Several Demurrers of the Several Defendants to Bill of Complaint.
Order granting Temporary Injunction, filed Jan. 6, 1911.
Bond Des Moines Gas Company for Temporary Injunction $100,000, filed Jan. 13, 1911.
Subpœna in Chancery with Marshal's Return of Service.
Temporary Restraining Order.
Marshal's Return of Service Thereof.
Temporary Injunction with Marshal's Return of Service thereon.
Answer of City of Des Moines, et al.
Replication.
Order appointing Robert Sloan, Esq., Special Master.
Oath of Office Robert Sloan, Esq., Special Master.
Order of Robert Sloan, Esq., Special Master, setting time for hearing cause.
Request for Additional Findings by Defendant.
Report of Robert Sloan, Special Master, filed April 5, 1912.

Supplemental Report of Robert Sloan, Special Master, in Response to Defendant's Request for Additional Findings.
Stipulation as to Preliminary Draft of Master's Report.
Complainant's Exceptions to Report of Special Master.
Defendant's Exceptions as to Report of Special Master.
Supplemental Report of Robert Sloan, Special Master, as to Exhibits and Witnesses, filed May 10, 1912.
Proceedings of Hearing had July 9, 10, 11, 12, 1912 before Hon. Smith McPherson, Judge, on Exceptions to Master's Report.
415 Opinion of Hon. Smith McPherson, Judge, August 21, 1912.
Decree, filed August 21, 1912.
Notice of Hearing of Appeal of Modification of Decree.
Appeal from Modification of Decree.
Resistance to Appeal from Modification of Decree.
Decree Filed October 10, 1912.
Petition for Appeal and Order allowing same.
Assignment of Errors.
Prayer for Reversal.
Bond on Appeal.
Citation with Acceptance.
Præcipe for Transcript of Record.
Supersedeas Bond.

Evidence Before the Master:

Appearances.
Opening Statements by the Hon. George H. Carr.
Opening Statement by Robert O. Brennan, Esq.

Complainant's Testimony:

Testimony of Jansen Haines.
Testimony of B. F. Kauffman.
" " Mack Olsen.
" " R. P. Bolton.
" " H. M. Porter.
" " R. R. McCutchen.
" " W. P. Brodnax.
" " E. P. Walter.
" " Henry Moul.

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Testimony of E. L. Heiser.
" " Henry I. Lea.
" " W. A. Baehr.
" " William A. Randolph.
" " William J. Hagenah.
" " Homer A. Miller.
" " Simon Cassedy.
" " Andrew Cooke.
" " Harold Almert.

" " Arthur Reynolds.
" " William C. Harbach.
" " C. S. Walker.
" " J. E. McDonell.
" " E. S. Root.

Defendants' Testimony:

Testimony of A. C. Hauge.
" " B. S. Walker.
" " W. H. Arnold.
" " A. S. Wilcoxen.
" " F. A. Mathis.
" " William D. Marks.
" " W. F. Douthirt.
" " George D. Dobson.
" " James Hall.
" " James Parker.
" " E. C. Pease.
" " Andrew Sangster.
" " Jansen Haines.
" " Edward W. Bemis.
" " John MacVicar.
" " James R. Hanna.
" " G. W. Curran.
" " E. M. Sherman.

417 Complainant's Testimony in Rebuttal:

Testimony of A. E. Hollingsworth.
" " J. A. Pearson.

Defendant's Testimony in Sur-rebuttal:

Testimony of W. F. Douthirt.

Complainant's Testimony in Rebuttal:

Testimony of John W. Alvord.

Defendant's Testimony in Sur-rebuttal:

Testimony of W. F. Douthirt.
" " Mack Olsen.
" " B. F. Kauffman.
" " Henry Moul.

Testimony Closed.
Stenographer's Certificate as to Testimony.
Master's Certificate as to Testimony (Not Signed).
Master's Certificate as to Testimony (Signed).

Exhibits:

Complainant's Exhibit No. 1: Certified Copy of Record of Articles of Incorporation of Des Moines Gas Company.

Exhibit No. 2: Certified Copy of Record of Ordinance No. 1767 of City of Des Moines passed December 27, 1910.

Exhibit No. 3: Proceedings of the City Council of City of Des Moines October 21, 1910, page 958.

Exhibit No. 4: Proceedings of City Council of City of Des Moines February 1, 1911, pages 1186 & 1192.

Exhibit No. 5: Map of gas works real estate,

418 Exhibit No. 6: Map of City of Des Moines showing location of gas works.

Exhibit No. 7: Copy of letter Jansen Haines to John MacVicar, dated November 22, 1910.

Exhibit No. 8: Letter John MacVicar to Jansen Haines, dated November 25, 1910.

Exhibit No. 9: Copy of letter Jansen Haines to John MacVicar, dated November 26, 1910.

Exhibit No. 10: Letter John MacVicar to Jansen Haines dated November 29, 1910.

Exhibit No. 11: Copy of letter Jansen Haines to John MacVicar, dated December 2, 1910.

Exhibit No. 12: Letter John MacVicar to Jansen Haines dated December 2, 1910.

Exhibit No. 13: Letter John MacVicar to Jansen Haines dated December 3, 1910.

Exhibit No. 14: Copy of letter Jansen Haines to Mayor and City Council of City of Des Moines dated December 28, 1910.

Exhibit No. 15: Inventory of property of Des Moines Gas Company, Volume I.

Exhibit No. 16: Inventory of property of Des Moines Gas Company, Volume II.

Exhibit No. 17: Street main map Des Moines Gas Company, Eastern District.

Exhibit No. 18: Street main map Des Moines Gas Company, Western District.

Exhibit No. 19: Street main map Des Moines Gas Company, Valley Junction District.

Exhibit No. 20: Report of Henry I. Lea on the Des Moines Gas Company.

Exhibit No. 21: Report of W. A. Baehr on the Des Moines Gas Company.

Exhibit No. 22: Report of W. W. Randolph on the Des Moines Gas Company.

Exhibit No. 23: Report of W. J. Hagenah on Financial Condition of Des Moines Gas Company.

Exhibit No. 24: Des Moines Gas Company, statement of Profit and Loss covering periods from January 1, 1906, to December 31, 1910.

419 Exhibit No. 25: Des Moines Gas Company, Annual Investment Value on 8 per cent Earning Basis, depreciation 2¼ per cent.

Exhibit No. 26: Des Moines Gas Company, Annual Investment Value on 8 per cent Earning Basis; depreciation 2 per cent.

Exhibit No. 27: Des Moines Gas Company, Schedule comparing Capital Expenditures as per Books with Average of Engineers present value.

Exhibit No. 28: Des Moines Gas Company, Gross Revenue and Net Earnings, without Allowing for Depreciation for 3 years ended September 30, 1910.

Exhibit No. 29: Des Moines Gas Company, Gross Revenue and Net Return, applicable to Interest and Profits for 5 years ended December 31, 1910.

Exhibit No. 30: Des Moines Gas Company, Gross Revenue and Net Return applicable to Interest and Profits for 5 years ended December 31, 1910, excluding Valley Junction.

Exhibit No. 31: Des Moines Gas Company, Working Capital December 31, 1910.

Exhibit No. 32: Des Moines Gas Company, Gas Sales first 6 months of 1911.

Exhibit No. 33: Des Moines Gas Company, Statistical Data.

Exhibit No. 34: Des Moines Gas Company, Detailed Statement of Gas Sales, June 30, 1888 to December 31, '10.

Exhibit No. 35: Statement of Active Meters in Service December 31, 1886 to December 31, 1910.

Exhibit No. 36: Des Moines Gas Company, Statistical Percentage Schedule.

Exhibit No. 37: Mains in Ground by Years, January 1, 1889, to December 31, 1910.

Exhibit No. 38: Photograph of Insurance Map, gas works territory.

Exhibit No. 39: Consolidated Gas Company, New York, City's Exhibit No. 126.

Exhibit No. 40: Des Moines Gas Company, Photograph of Stairway on Purifier House.

Exhibit No. 41: William D. Marks' diagram showing estimated cost of laying gas mains.

Exhibit No. 42: William D. Marks' data sheet for diagram showing estimated cost of laying gas mains.

420 Exhibit No. 43: William D. Marks' data sheet for diagram showing estimated cost of laying gas mains as taken from Buffalo testimony, defendants' exhibit "G".

Exhibit No. 44: Table showing average price, total sales, sales per capita, total meters, sales per meter, population, (44-A). population per meter, miles of main, and works capacity of the Cities of Lawrence, Cambridge, Lowell, New Bedford, and Springfield, Mass., year- 1901 to 1910 inclusive, taken from State reports.

Exhibit No. 45: Tax Return Statement, made by Des Moines Gas Company, January 1, 1909.

Exhibit No. 46: Tax Return Statement, made by Des Moines Gas Company, January 1, 1910.

Exhibit No. 47: Tax Return Statement made by Des Moines Gas Company, January 1, 1911.

Exhibit No. 50: Average Gross Revenue and Net Return applicable to Interest and Profits for 4 years ended December 31, 1909.

Exhibit No. 49: Average Gross Revenue and Net Return applicable to Interest and Profits for 4 years ended December 31, 1909, excluding Valley Junction.

Exhibit No. 50. Average Gross Revenue and Net Return applicable to Interest and Profits for 5 years ended December 31, 1910.

Exhibit No. 51: Average Gross Revenue and Net Return applicable to Interest and Profits for 5 years ended December 31, 1910 excluding Valley Junction.

Exhibit No. 52: Profits on basis of 90¢ gas and average expenses for 5 years to December 31, 1910.

Exhibit No. 53: Profits on basis of 90¢ gas and average expenses for 5 years to December 31, 1910, excluding Valley Junction.

Exhibit No. 54: Profits on basis of 90¢ gas and adjusting operating expenses.

Exhibit No. 55: Profits on basis of 90¢ gas and adjusting operating expenses.

Exhibit No. 56: Annual Investment Value on an 8 per cent earning basis, without depreciation.

Exhibit No. 57: Working Capital, (referring to Hall's Exhibit F of the Defendant's Exhibit 30) including Current and Working Assets and Current Liabilities less Bills Payable.

Exhibit No. 58: Working Capital (referring to Hall's Exhibit F of the Defendant's Exhibit 30—including Current and Working Assets and Current and Accrued Liabilities.

421 Exhibit No. 59: Explanation of Working of Wisconsin Theory of Investment Values, using as a Basis an Original Investment of $1,000 with Annual Additions of $1,000 for 20 years.

Exhibit No. 60: Table referring to Defendant's Exhibit No. 34.

Exhibit No. 61: Adjustment of Gross Corporate Income as shown by Complainant, and as Recorded in Defendants' Exhibit No. 30. Exhibit "A".

Exhibit No. 63: Organization Expenses, Des Moines Gas Company.

Exhibit No. 64: Blue print "straight line depreciation 20 year period."

Exhibit No. 65: Table giving statistical data of seven Massachusetts Cities, compared with William D. Marks' unit cost, Defendants' Exhibit No. 23.

Exhibit No. 65-A: Table giving statistical data of seven Massachusetts Cities, compared with William D. Marks' unit cost, Defendants' Exhibit No. 23, Street Main Details.

Exhibit No. 66: Table showing sales for seven Massachusetts cities 1900, 1905, and 1910, also giving per capita sales for 1910 correcting page 86 Defendants' Exhibit No. 43.

Exhibit No. 67: Table showing total for year- 1900, 1905 and 1910, of seven Massachusetts cities, giving mains, meters and sales, correcting page 87 of Defendants' Exhibit No. 43.

Exhibit No. 68: Agreement—Edward W. Bemis and City of Des Moines—

Exhibit No. 69: Synopsis of transaction of the U. G. I. Company with the Des Moines Gas Company as prepared by Mr. Andrew Sangster.

Exhibit No. 71: Miscellaneous papers and letters produced in Court by Mayor James Hanna.

Exhibit No. 71-A: Tabulation made by Mayor James Hanna from letters contained in Complainant's Exhibit No. 71.

Exhibit No. 72: Copy of letter Mayor Hanna to Prof. Wm. D. Marks dated February 11, 1911.

Exhibit No. 73: Bill of Prof. Wm. D. Marks to the City of Des Moines, dated February 29, 1911, for professional services and expenses.

Exhibit No. 74: Prof. Wm. D. Marks' report to the Mayor and City Council of the City of Des Moines in re Des Moines Gas Company, dated February 17, 1911.

Exhibit No. 75: Clipping from "Register & Leader" February 21, 1911.

422 Exhibit No. 76: Clipping from "Tribune" February 21, 1911.

Exhibit No. 77: Verified copy of audit of Boston Consolidated Gas Company for year ended June 30, 1911.

Exhibit No. 78: Copy of letter J. A. Pearson, Purchasing Agent, to various oil companies.

Exhibit No. 79: Proposed Contract Des Moines Gas Company and Nashville Refining Company, May 3, 1909.

Exhibit No. 80: Letter Sun Oil Company to J. A. Pearson, January 7, 1909.

Exhibit No. 81: Letter Great Western Oil Company to J. A. Pearson May 11, 1909.

Exhibit No. 82: Letter Gas Oil Company to J. A. Pearson, May 5, 1909.

Exhibit No. 83: Cost of laying water mains in Buffalo Municipal Water Works, fiscal year 1902, prepared by W. J. Hagenah.

Exhibit No. 84: Cost of laying water mains in Buffalo, Municipal Water Works, fiscal year 1903 prepared by W. J. Hagenah.

Exhibit No. 85: Cost of laying Buffalo Municipal Water Works, fiscal year 1904, prepared by W. J. Hagenah.

Exhibit No. 86: Cost of laying water mains Buffalo Municipal Water Works, fiscal year 1905, prepared by W. J. Hagenah.

Exhibit No. 87: Cost of laying Water Mains Buffalo Municipal Water Works, fiscal year 1906, prepared by W. J. Hagenah.

Exhibit No. 88: Recapitulation Sheet—cost of laying water mains in Buffalo, Municipal Water Works, 1902 to 1906 inclusive, as shown by pipe extension records, prepared by W. J. Hagenah.

Exhibit No. 89: Unit cost of water mains laid in Buffalo Mu-

nicipal Water Works 1902 to 1906, inclusive, prepared by W. J. Hagenah.

Exhibit No. 90: Liability Insurance estimated on basis of 1910 pay role and sales of 532,000,000 cubic feet of gas.

Exhibit No. 91: Statement of Gas Sales ten months ended October 30, 1911.

Exhibit No. 92: Certified copy of Deed, Capital City Gas Light Company to Des Moines Gas Company, March 1, 1906.

Exhibit No. 93: Statement of Revenue and Cost of Operating 10 months ended December 31, 1911.

423 Defendants' Exhibit:

No. 1: Tax Return Statement made by Des Moines Gas Company, January 1, 1908.

No. 2: Des Moines Gas Company, Street Main Instruction Order Blank.

No. 3: Des Moines Gas Company, Street Main Instruction Order Blank filled in.

No. 4: Des Moines Gas Company Street Main Authorization No. 520.

No. 5: Copy of page No. 59, Des Moines Gas Company street main record book No. 7 showing sketch covering Authorization No. 520.

No. 6: Copy of report Henry I. Lea on the Gage County Gas Light and Power Company, Beatrice, Nebraska, February 3, 1911.

No. 8: Des Moines Valuation, notes on depreciation by J. B. Klumpp.

No. 9: Historical Development Curves No. 1 Des Moines Gas Company.

No. 10: Historical Development Curves, Hypothetical Plant, No. 3, Des Moines Gas Company.

No. 11: Historical Development Curves No. 2, Des Moines Gas Company.

No. 12: Detailed Statement of Gas Sales, 1904 to 1910.

No. 13: Record of mains laid by year and sizes, 1888 to 1910.

No. 14: History of Price of Gas, Des Moines Gas Company.

No. 15: Statement of Profit and Loss, years ended September 30, 1908 and September 30, 1909, Des Moines Gas Company.

No. 16: Statement of Profit and Loss, years ended September 30, 1910 and December 31, 1910, Des Moines Gas Company.

No. 17: Des Moines Gas Company, cost of Services 1906 to 1910 inclusive.

No. 18: 1911 Annual Estimate and Correspondence pertaining thereto, Des Moines Gas Company.

No. 19: Copy Oil Contract, dated May 6, 1907.

No. 20: Copy Oil Contract, dated May 14, 1909.

No. 21: Copy of Coke Contract, dated May 27, 1911.

No. 22: Capital City Gas Light Company, Des Moines Gas Company—Analysis of Real Estate Account.

424 No. 23: Report Wm. D. Marks on Des Moines Gas Company.

No. 24: Wm. D. Marks' diagram showing estimated cost of laying gas mains, being the same as Complainant's No. 41.

No. 25: Capital City Gas Light Company, Stockholders' and Directors' Minutes, Volume I.

No. 26: Capital City Gas Light Company, Stockholders' and Directors' Minutes, Volume II.

No. 27: Des Moines Gas Company, Stockholders' and Directors' Minutes, Volume I.

No. 28: Des Moines Gas Company, Directors' Minutes, 10 pages, covering Meetings of April 24, 1911, May 22, 1911, June 26, 1911, July 10, 1911, and July 24, 1911.

No. 29: Plat of Property adjacent to gas works showing assessed valuation thereof, prepared by James Parker.

No. 30: Report of James Hall, of Marwick, Mitchell and Company, on the Des Moines Gas Company.

No. 31: Des Moines Gas Company, Rate Regulation Account for the years 1909 and 1910.

No. 32: Figures made by Mr. Hall in endeavor to reconcile Defendants' Exhibit 30 with Complainant's Exhibit 23.

No. 33: Report of James Hall, of Marwick, Mitchell and Company—Investment Value of Plant, Des Moines Gas Company, December 31, 1910.

No. 34: Explanation of Wisconsin Theory of Investment value, using as a basis an original investment of $1,000 with annual additions of $1,000 for 20 years, prepared by James Hall, of Marwick, Mitchell and Company.

No. 35: Summary of Plant Investment as per books, January 1, 1895, to December 31, 1910, prepared by James Hall of Marwick, Mitchell and Company.

No. 36: Estimated Average Investment and Return from Estimated Revenue, prepared by James Hall, of Marwick, Mitchell and Company.

No. 37: Contract Des Moines Gas Company and Percival Porter Co. Agent, in re street main extension.

No. 38: Capital City Gas Light Company, Des —, Iowa, Cash invested in Construction and Working Capital December 31, 1894—as shown by Affidavit of Edw. G. Pratt, filed June 14, 1895, in Cause No. 2033, Equity in the U. S. Circuit Court, Southern District of Iowa, being Capital City Gas Light Company vs. City of Des Moines.

No. 39: Affidavit Edw. C. Pratt, June 7, 1895, in Case Capital City Gas Light Company vs. City of Des Moines.

No. 40: A part of the affidavit and statement of Edw. G. Pratt as filed in the Case of Exhibits Nos. 38 and 39, supra.

425 No. 41: Transcript of testimony in No. 2330 Equity Capital City Gas Light Company vs. City of Des Moines.

No. 42: Affidavit Edw. G. Cowdery, June 6, 1895, in Cause No. 2330 Equity, Capital City Gas Light Company vs. City of Des Moines.

No. 43: Report of Edward W. Bemis on the Des Moines Gas Company.

No. 44: Pamphlet entitled "The Issue in the Foreground—Gas".

No. 45: Price of Cast Iron Pipe, Des Moines Gas Company, Edw. W. Bemis.

No. 46: Illustration of Sinking Fund Method of Financing Depreciation by E. W. Bemis.

No. 47: Operating Expenses and Profits, 1910 and 1911, Des Moines Gas Company, by E. W. Bemis.

No. 48: Bill, Des Moines Gas Company to the U. G. I. Company, for fee paid A. B. Cummings, March 23, 1905.

No. 49: Bill, Des Moines Gas Company to the U. G. I. Company, expenses of F. C. Morgan, March 14, 1906.

No. 50: Bill, Des Moines Gas Company to the U. G. I. Company, expenses of D. B. Reinhardt, March 31, 1906.

No. 51: Bill, Des Moines Gas Company to the U. G. I. Company for notary services, April 3, 1906.

No. 53: Bill, Des Moines Gas Company to the U. G. I. Company, October 31, 1906, October time of J. S. Harrison.

No. 54: Bill, Des Moines Gas Company to the U. G. I. Company, September 30, 1906, September time of J. S. Harrison.

No. 55: Letters between Jansen Haines and Lewis Lillis, in re journal entry of September 15, 1910.

No. 56: Treasurer's Check Book, Des Moines Gas Company on First National Bank, Philadelphia.

No. 57: Voucher, September 15, 1911, Des Moines Gas Company to the U. G. I. Company.

No. 58: Voucher, September 15, 1911, Des Moines Gas Company to the U. G. I. Company.

No. 59: Analysis of Accounts, Des Moines Gas Company with the U. G. I. Company, March 1, 1906 to December 31, 1910.

No. 61: The U. G. I. Company statement taken from Moody's Manual Service 1910.

No. 67: Des Moines Gas Company operating expenses, 8 mos. ending December 31, 1910.

No. 68: Des Moines Gas Company, additions to plant, January 1, to August 31, 1911.

426 No. 69: Des Moines Gas Company; Note of gas sales for 12 months to February 28th in each year—1907—1911.

No. 70: Mr. Sangster's figures analyzing the account of the U. G. I. Company and Des Moines Gas Company, being the same as Complainant's Exhibit No. 69.

No. 71-A: Ordinance of the City of Minneapolis passed February 23, 1910.

No. 71-B: Ordinance City of Minneapolis passed March 24, 1910.

No. 72: Letter J. R. Hanna to Jansen Haines dated February 7, 1911.

No. 73: Letter Jansen Haines to Mayor J. R. Hanna dated February 14, 1911.

No. 74: Prof. Bemis' analysis and correction to Complainant's Exhibit No. 65—

No. 75: Prof. Bemis' correction for page 92 of his report, Defendants' Exhibit No. 43.

No. 76. Prof. Bemis' margin between price of gas on the one hand

and manufacturing expenses, leakage and taxes on the other hand, in Des Moines, and in seven Massachusetts cities.

No. 77: Des Moines Gas Company, rate regulation expense, January 1 to August 31, 1911, prepared by Mr. Sangster.

No. 78: Semi-annual statement of Commercial Trust Co. of Philadelphia, at close of business on July 31, 1911.

No. 79: Capital City Gas Light Company, Copies of improvement and repair authorizations Nos. 439, 460, and 467, covering the million foot holder and 8 ft. 6 in. water gas set.

No. 80: Summary of data on which were based the tables Nos. 91 and 92 in the report of E. W. Bemis, Defendant's Exhibit No. 43.

No. 81. Wisconsin theory—summary of Investment Account after crediting depreciation charge and on operating expense—July 1, 1896 to December 31, 1910, prepared by James Hall of Marwick, Mitchell and Company.

No. 82: Bill, Des Moines Gas Company, in account with Blaise & Blaise, dated April 1, 1911.

No. 83: Voucher, Des Moines Gas Company, to Blaise & Blaise, April 1, 1911.

No. 84-A: Extract from U. G. I. ledger 7-A and 8-A, Des Moines contract No. 87.

No. 84-B: Extract U. G. I. ledger 7-A and 8-A Des Moines contract No. 52.

427 No. 84-C: Transcript from construction records of George J. Roberts, showing detailed cost of constructing oil plant and water gas apparatus at Des Moines, Iowa.

No. 84-D: Transcript from construction records of George J. Roberts, showing detailed cost of constructing gas holder at Des Moines, Iowa.

No. 84-E: Extract from U. G. I. ledger 8-A showing account with Des Moines Gas Company March 1, 1906, to December 31, 1910.

No. 84-F: Contract—Stacey Manufacturing Company and George J. Roberts, October 18, 1902, for erection of gas holder on land adjoining gas works of Capital City Gas Light Company at Des Moines, Iowa.

Respectfully,

(Sgd.) GEORGE H. CARR,
WILLIAM L. READ,
NATHANIEL T. GUERNSEY,
(Attorneys for Appellant.)

Service of the foregoing præcipe for record accepted and copy thereof acknowledged at Des Moines, Iowa, this 23rd day of November 1912.

(Sgd.) H. W. BYERS,
R. O. BRENNAN,
Attorneys for Appellees.

(Endorsed:) Filed November 23rd, 1912. Wm. C. McArthur, Clerk.

428 And thereafter to-wit: On the 27th day of November A. D. 1912 there was filed in said cause a Supersedeas Bond Under Clause Six of the Final Decree Herein which said Bond is in the words and figures as follows to-wit:

In the District Court of the United States, Southern District of Iowa, Central Division.

#71-M.

DES MOINES GAS COMPANY, Complainant,
vs.
THE CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, Charles W. Schramm, John Wesley Ash, Zell G. Roe, and Robert O. Brennan, Defendants.

Supersedeas Bond Under Clause Six of Final Decree Herein.

Know all men by these presents: That we, The Des Moines Gas Company, a corporation organized under the laws of the State of Iowa, with its principal place of business in the City of Des Moines, in said state, as principal, and The United States Fidelity & Guaranty Company of Baltimore, Maryland, as surety, are held and firmly bound unto the City of Des Moines, James R. Hanna, John MacVicar, Charles W. Schramm, John Wesley Ash, Zell G. Roe and Robert O. Brennan, in the sum of One Hundred Fifty Thousand and 00/100 ($150,000) Dollars, for the payment of which well and truly to be made, we bind ourselves and each of us, the successors of each of us jointly and severally, firmly by these presents.

Sealed with our seals and dated the 4th day of November, A. D. 1912.

The foregoing obligation is, however, upon the following express condition:

Whereas, on the 27th day of December, 1910, the City of Des Moines passed an ordinance fixing the price of gas sold and
429 delivered, at $.90 per thousand cubic feet; and thereto said moneys collected as aforesaid, if it shall fail to make said appeal good, then this obligation shall be void, otherwise the same shall be and remain in full force and effect.

[Des Moines Gas Company Seal.]

DES MOINES GAS COMPANY,
(S'g'd) By JANSEN HAINES, *President;*
Principal.
THE UNITED STATES FIDELITY & GUARANTY CO., *Surety,*
(S'g'd) C. BIRD GOULD, *Att'y in Fact.*

Attest:
(S'g'd) W. B. KEFFER, [Surety Company Seal.]
Assistant Secretary.

Approved.
(S'g'd) SMITH McPHERSON, *Judge.*

(Endorsed:) Filed November 27th, 1912. Wm. C. McArthur, Clerk.

430 Whereas, on the 6th day of January, 1911, the court entered herein an order temporarily restraining the defendants from enforcing the said ordinance, but providing that in the event it should be determined by the final decree in this case, that said ordinance of December 27, 1910, is valid, that complainant should refund, on demand to the persons by whom payment was made, all sums of money collected by it for gas sold and delivered from and after the 1st day of January, 1911, in excess of the rate specified in the said ordinance of December 27th, 1910; and,

Whereas, on or about the 10th day of October, 1912, a final decree was rendered herein, adjudging said ordinance valid; and,

Whereas, it is provided in the said decree that in the event an appeal is taken and the said decree affirmed, then complainant shall refund all moneys collected and received for gas sold and delivered in excess of the rates provided in said ordinance of December 27, 1910; and,

Whereas, it is provided in said decree that the provisions thereof with respect to the refund of ten cents per thousand feet of gas in excess of the rate fixed by said ordinance may be superseded, upon condition that the complainant file a bond for that purpose in the penal sum of One Hundred Fifty Thousand ($150,000) Dollars, with sureties to be approved, and,

Whereas, the above named Des Moines Gas Company has prosecuted an appeal to the Supreme Court of the United States to reverse the final decree rendered in the above entitled cause by the District Court of the United States for the Southern District of Iowa, Central Division, on or about the 10th day of October A. D. 1912;

Now therefore, the condition of this obligation is such that if the above named Des Moines Gas Company shall prosecute said appeal to effect, or shall promptly refund to the persons entitled.

431 And thereafter to-wit: On the 29th day of November A. D. 1912 there was filed in said cause a præcipe for additional parts of the record by the Appellees which said præcipe is in the words and figures as follows to-wit:

432 In the District Court of the United States for the Southern District of Iowa, Central Division.

No. 71-M. In Equity.

DES MOINES GAS COMPANY
vs.
CITY OF DES MOINES et al.

To the Clerk:

You will please take a transcript of the following portions of the record in the above entitled case, in addition to the portions of the

record indicated in the præcipe filed by Appellant on Nov. 23d, 1912, to-wit:

Notice of Application for an Order for Complainant to turn over certain exhibits to Defendants with Acceptance of Service thereof by Complainant's Solicitors.

Application for an Order directing the Officers of the Complainant Company to deliver to Counsel for Defendants certain exhibits.

Resistance to Application for an order directing Jansen Haines, President of Complainant, to turn over and deliver to Counsel for Defendants certain exhibits.

Order of Robert Sloan, Esq., Special Master, requiring Jansen Haines to turn over certain exhibits to the Clerk of the Court.

(S'g'd) R. O. BRENNAN &
H. W. BYERS,
Solicitors for Appellees.

Service of the foregoing is accepted this 29th day of November, 1912.

(S'g'd) N. T. GUERNSEY,
W. L. READ, AND
GEO. H. CARR,
Solicitors for Appellant.

(Endorsed:) Filed November 29th, 1912, Wm. C. McArthur, Clerk. By Louis J. Adelman, Deputy.

433 And thereafter to-wit: On the same day November 29th 1912 there was filed in said cause a Stipulation in regard to certain defendants exhibits which said stipulation is in the words and figures as follows to-wit:

434 In the District Court of the United States for the Southern District of Iowa, Central Division.

No. 71-M. In Equity.

DES MOINES GAS COMPANY
vs.
CITY OF DES MOINES et al.

It is hereby stipulated and agreed between the parties hereto as follows:

There are of record in this case Defendants' Exhibits #60, 62, 63, 64, 65 and 66, being books of account of the Des Moines Gas Company covering the period from March 1, 1906, to December 31, 1910. These books contain about 2,000 pages. There are in evidence certain statements, calculations and tabulations made by various witnesses taken from and based upon said books of account. The record contains objections to all or a portion of said statements, calculations and tabulations on the ground that they are incompetent, the books of account being the best evidence.

Now therefore, for the purpose of reducing the size of the transcript of the record, it is expressly agreed that said exhibits may be omitted and that all statements, calculations and tabulations taken from and based upon said books of account shall be received with like force and effect as tho the said books of account were set forth in the transcript, and all objections to said statements, calculations and tabulations because said books are the best evidence and because a transcript of said books has not been taken and filed herein, are expressly withdrawn and waived.

Dated this 29th day of November, 1912.

(S'g'd) N. T. GUERNSEY,
W. L. READ,
GEO. H. CARR,
Solicitors for Complainant.

(S'g'd) R. O. BRENNAN &
H. W. BYERS,
Solicitors for Defendants.

(Endorsed:) Filed November 29th, 1912. Wm. C. McArthur, Clerk, by Louis J. Adelman, Deputy.

435 In the District Court of the United States for the Southern District of Iowa, Central Division.

No. 71-M. In Equity.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES et al., Defendants.

Clerk's Certificate to Part One (1) of Transcript.

UNITED STATES OF AMERICA,
Southern District of Iowa, ss:

I, Wm. C. McArthur, Clerk of the District Court of the United States for the Southern District of Iowa, and as successor in office of the Clerk of the Circuit Court of the United States for said District and State, hereby certify the foregoing designated as part one of the transcript (pages 1 to 434, inclusive, all contained in one bound volume) to be a true, full and complete copy of all matters and things relating to the pleadings, proceedings, Master's Reports, Exceptions thereto and Decrees, as called for in the Appellant's præcipe and the Appellee's præcipe for a transcript in cause numbered 71-M Des Moines Gas Company verusu the City of Des Moines, Iowa, et aly., lately pending in said District Court of the United States for the Southern District of Iowa as successor of the Circuit Court of the United States for said District and State, as full, true and complete as the originals thereof now on file and of record in my office in the City of Des Moines in said District.

In testimony whereof, I have hereunto set my hand and affixed the seal of said Court at my office in the City of Des Moines in said District this 30th day of November A. D. 1912.

[Seal U. S. District Court, Southern District of Iowa.]

WM. C. McARTHUR,
Clerk as Aforesaid.

436 In the Supreme Court of the United States, October Term, 1912.

No. 884.

DES MOINES GAS COMPANY, Appellant,
versus
CITY OF DES MOINES et al, Appellees.

Stipulation

The parties hereto at this time deeming it unnecessary to a proper presentation of this case to print the entire transcript, it is stipulated and agreed that the Clerk shall omit from the printed record the following portions thereof, to-wit:

PART I—PLEADINGS, ORDERS, ETC.

	Page
Motion for Preliminary Injunction	11
Views of the Trial Court	13
Præcipe for Appearance, Defendant's Solicitor	22
Notice of Hearing for Temporary Injunction and Leave to Amend Bill of Complaint, with Acceptance of Service thereof by Defendant's Solicitor	24
Affidavit of John H. Blair in support of application for temporary injunction	33
Affidavit of Simon Casady in support of application for temporary injunction	35
Affidavit of William A. Baehr in support of application for temporary injunction	38
Affidavit of Jansen Haines in support of application for temporary injunction	57
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437 Affidavit of B. F. Kauffman in support of application for temporary injunction	92
Subpœna in Chancery with Marshal's Return of Service	112

Part 3—Exhibits.

Appellant's Exhibits— Page

No. 5. Map of Gas Works Real Estate 1
(This is a blue print of a part of Scott & Dean's Addition to Des Moines; the land owned by the Gas Company being enclosed in red.)

No. 6. Map of City of Des Moines showing location of Gas works 2
(This is a map of the City of Des Moines in five colors.)

No. 15. Inventory of Property of the Des Moines Gas Company—Volume 1 3
(This is the Company's Inventory of its property. The property described in this inventory is identical with the property listed and valued in Appellant's Exhibits Nos. 20, 21 and 22, and Appellees' Exhibit No. 23, being reports of Messrs. Lee, Baehr, Randolph and Marks.)

No. 16. Inventory of Property of the Des Moines Gas Company,—Volume 2 284
(This volume contains maps, sketches and photographs of the property enumerated in Volume 1 of Inventory, Exhibit No. 15.)

No. 17. Street Main Map, Des Moines Gas Company, Eastern District 458

No. 18. Street Main Map, Des Moines Gas Company, Western District 459

No. 19. Street Main Map, Des Moines Gas Company, Valley Junction District 460
(The above three maps cover the distribution system of the Company and are on a large scale. If reproduced for binding, the scale would become so small as to make the maps useless.)

438 No. 25. Annual Investment Value on an 8% Earning Basis—Depreciation 2¼% 819

No. 26. Annual Investment Value on an 8% Earning Basis—Depreciation 2% 820
(Exhibits Nos. 25 and 26 above are computations based on the Wisconsin theory as used by Mr. Hagenah.)

No. 37. Mains in Ground, by years, 1889 to 1910 inclusive 831
(This table shows the mains in the ground January 1, 1889; the amount laid each year; the amount taken up each year, showing the number of feet in use to beginning of each year, from January 1, 1889 to January 1, 1911. This exhibit is the same as Appellee's Exhibit No. 13.)

Page

No. 38. Photograph of Insurance Map, Gas Works Territory 843
No. 40. Photograph of Stairway on Purifying House... 844
No. 56. Annual Investment Value on an 8% Earning Basis—without depreciation 852
(The same comments on this Exhibit Apply as on Nos. 25 and 26.)
No. 59. Explanation working of the Wisconsin theory of investment values, using as a Basis an Original Investment of $1,000 with Annual Addition of $1,000 for 20 years..... 853
(The same comments apply to this Exhibit as Nos. 25, 26 and 56, above.)
No. 77. Verified copy of Audit of the Boston Consolidated Gas Company 862

Appellees' Exhibits—

No. 2. Des Moines Gas Company Street Main and Instruction Order Blank 895
(This Exhibit is the same as No. 3 except that in No. 3 the blanks are filled in.)
No. 24. William D. Marks' Diagram showing estimated Cost of Laying Gas Mains..... ——
(This Exhibit is identical with Appellees' Exhibit No. 41.)
439 No. 25. Stockholders' and Director's Minutes..... 1107
No. 26. Stockholders' and Director's Minutes..... 1320
No. 27. Stockholders' and Director's Minutes..... 1508
No. 28. Stockholders' and Directors' Minutes..... 1749
No. 29. Plat of Property Adjacent to Gas Works..... 1760
No. 33. Report of James Hall of Marwick Mitchell & Company.—Investment Value of Plant December 31, 1910 1835
(This Exhibit is based on the Wisconsin theory and is omitted for the same reasons that the Wisconsin Theory Exhibit of Mr. Hagenah is omitted.)
No. 24. Explanation of Wisconsin Theory of Investment Value 1843
No. 44. "An Issue in the Foreground—Gas"..... 1987
No. 78. Semi-Annual Statement of the Commercial Trust Company of Philadelphia, July 31, 1911.... 2053
No. 81. Wisconsin Theory—Summary of Investment Account, after crediting depreciation charge as an operating expense..... 2057
(Same reason as for No. 33.)
Nos.
84-A, 84-B) All being Transcripts and Extracts from the
84-C, 84-D) U. G. I. Co. Ledgers 7-A and 8-A and from
84-E, 84-F) the Construction Records of George J. Roberts 2060

It is further stipulated that if either party hereto shall desire to referred to has been omitted from the printed transcript.
to be not printed pursuant to this stipulation, no other party hereto shall object to such reference upon the ground that the matter referred to has been omitted from the printed transcript.

If it shall later appear to either party that any portion of the transcript to be omitted from the printed record, under this
440 stipulation, should be included in the printed record, the same shall, upon request of said party, be printed by the Clerk.

Signed at Des Moines, Iowa, this 30th day of June 1913.

N. F. GUERNSEY,
GEO. H. CARR,
Solicitors for Appellant.

H. W. BYERS,
ROBERT O. BRENNAN,
Solicitors for Appellee.

441 [Endorsed:] File No. 32,459. Supreme Court U. S., October term, 1913. Term No. 397. Des Moines Gas Company, appellant, vs. City of Des Moines et al. Stipulation to omit parts of record in printing. Filed July 9, 1913.

[End of Volume I.]

(23,459)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1913.

No. 397.

DES MOINES GAS COMPANY, APPELLANT,

vs.

CITY OF DES MOINES ET AL.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF IOWA.

VOLUME II.

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VOLUME II.

DES MOINES GAS COMPANY
vs.
CITY OF DES MOINES et al.

1 In the Circuit Court of the United States, Southern District of Iowa, Central Division.

DES MOINES GAS COMPANY, Complainant,
vs.
CITY OF DES MOINES, JAMES R. HANNA, JOHN MACVICAR, C. W. Schramm, J. W. Ash, Zell G. Roe, and R. O. Brennan, Respondents.

Before Hon. Robert Sloan, Special Master in Chancery.

Reported by J. P. Blaise and Frank C. Walrath.

Appearances.

Carr, Carr & Evans, Read & Read, Guernsey, Parker & Miller, Attorneys for Complainant.
H. W. Byers and R. O. Brennan, Attorneys for Respondent.

Case called at Ten o'clock A. M., July 12, 1911.

2 *Opening Statement on the Part of the Complainant by Judge George H. Carr.*

If the Court please: The time that will be necessarily consumed in the taking of the evidence in this case will, we apprehend, not be measured by days, but by weeks, and for that reason it has seemed to us that it would be helpful to make quite a full and comprehensive statement in this case, and that the aid that will come from that will justify the time reasonably consumed in making such a statement. If that accords with your Honor's view, I will proceed to make such a statement of our side of the controversy.

The MASTER: I have read the pleadings and one or two of the affidavits.

Judge CARR: This action is brought by the complainant, the Des Moines Gas Company, to restrain the defendants, the City of Des Moines and its officers from putting into operation an ordinance passed on the 27th day of December, 1910, fixing the price of gas at ninety cents, on the ground and for the reason, that the rate fixed is

not a reasonable rate and that it is so low as to result in confiscation of the complainant's property.

On the 7th day of February, 1896, the City of Des Moines, during litigation that was then pending between the City and that Capital City Gas and Light Company, the predecessor of the present complainant Company, passed an ordinance, contractural in its character, ficing the price of gas sold and delivered at $1.30, which by the terms of the contract was to be reduced from time to time until in 1906 it arrived at the lowest price provided for in the contract, which was $1 per thousand cubif feet for gas sold and de-
3 livered, with the provision that where payment was not made before the 15th of the month following the month in which the gas was delivered, the Company could charge an additional ten cents.

Now, that ordinance, as I say, became operative in 1896 and continued for five years. That ordinance being a fifteen year ordinance, expired by its terms on the first day of January, 1911. In October, 1910, the City Council passed a resolution appointing Mr. MacVicar, who is an official and member of the council and one of the commissioners, occupying the position of Superintendent of Streets and Public Improvements, and the City Solicitor, to prepare an ordinance and submit it to the council fixing the price at which gas should be sold. Shortly after the passage of that resolution Mr. MacVicar inquired of Mr. Haines, Manager of the Gas Company, as to what his attitude and position was in respect to furnishing gas. That inquiry was replied to by Mr. Haines on the 22nd day of November in a written communication, and following that a number of letters were exchanged.

It is our purpose, your Honor, to offer that correspondence in evidence. There is a presumption recognized by the courts generally that a rate fixed by a rate-making body is a just and fair rate.

The MASTER: That is, it is presumptively so?

Judge CARR: Yes, but that presumption is based upon this further presumption that in making the rate the rate-making body has looked into the situation and has taken into consideration all elements which enter into the establishing of a fair rate; that they have made an investigation and have not acted arbitrarily and jumped at the matter, but have made a judicial investigation for the purpose of ascertaining what would be a fair rate. I say the presumption of law necessarily involves that further presump-
4 tion. Now, we have the holdings of courts of high authority that where it is shown that the rate-making body acted without making such investigation, then the presumption, if not entirely overcome, is at least largely nullified. Now, as I say, it is our purpose to offer this correspondence in evidence and to show that the City Council in passing this ordinance on December 27th, made no investigation, and the purpose of offering the letters and communications in evidence is to show the attitude of the respective parties prior to the enactment of this ordinance, and setting forth in some detail the claims of the respective parties. We think it is competent evi-

dence and we think it will be instructive as showing the attitude of the parties.

It will be necessary, of course, that that correspondence which is not so very lengthy be read to your Honor, and with your permission I want to read it at this time as a part of the opening statement and then it will perhaps not be necessary to read the letters when they are offered.

This letter, dated Des Moines, Iowa, November 22, 1910, your Honor will remember, was the answer of Mr. Haines, manager of the Company, to the request of Mr. MacVicar for a statement of what the Company was willing to do, and it reads as follows:

"Hon. John MacVicar, Supt. Streets and Public Improvements, Des Moines, Iowa.

DEAR SIR: You have asked me to submit a proposition as to the rate at which the Des Moines Gas Company is willing to furnish gas to Des Moines consumers. You express the hope that it can see its way clear to accept a rate below the present net rate of $1.00 per thousand cubic feet. Being desirous of securing to the people of Des Moines the lowest rate which the Company can accept, consistent with sound business principles, I have given to the question careful consideration, and herewith have the honor of submitting to you the conclusion arrived at.

There is involved in the problem a fundamental principle which has been firmly established by the decisions of the courts of last resort, both State and Federal, and which is so eminently fair as to receive the sanction of all just minded men. This principle may be stated as follows:

5 The Company is entitled to a rate which will, after the payment of operating expenses and taxes, and after deducting a reasonable allowance for depreciation, leave a sum sufficient to afford it reasonable interest and profits upon the present value of its plant and assets, taking into consideration the character of the investment.

The rules by which the value of the property and assets is to be ascertained are in the main well settled, and with these rules you are familiar, and, therefore, I need not state them here.

The gross revenue from the sale of gas for twelve months ended September 30, 1908, was $457,105.95; for twelve months ended September 30, 1909, was $491,944.49; and for twelve months ended September 30, 1910, was $526,393.50. The average annual gross revenue for the three year period ended September 30th, 1910, was $491,781.31.

For the twelve months ended September 30, 1908, the operating expenses and taxes were $281,613.48; for the twelve month- ended September 30, 1909, were $283,339.06; and for the twelve months ended September 30, 1910, were $345,262.43. The average annual operating expenses and taxes for the three year period ended September 30, 1910, were $303,411.66.

The MASTER: Does that include the expenses of all repairs?

Judge CARR: Yes.

"Deducting from the average annual gross revenue, for the three year period, the average annual expenditure for operating expenses and taxes, there remains an average annual net earning for the period of $188,369.65. From this sum there must be deducted for depreciation, the sum of $49,178.13, which sum is ascertained by taking ten per cent of the average annual gross revenue from the sale of gas——"

I might say in passing that further on I shall have occasion to call your attention to this item that he speaks of as reserve for depreciation, and the reason for it and the principles upon which it is based.

The MASTER: What is the amount?

Judge CARR: $49,178.13.

The MASTER: Including repairs?

Judge CARR: That is the amount set apart or provided for to replace the property. Of course gas property, like all other properties, has a life; it can not exist and go on beyond a certain period.

6 The MASTER: The question I asked you was, does that include or exclude repairs.

Judge CARR: That excludes repairs.

"That this is no more than a reasonable allowance for depreciation will hereafter appear.

This leaves $139,191.52 as the average annual net amount received by the Company for interest and profits, which amounts to eight per cent on $1,739,894.00.

The above amount of $49,178.13 deducted for depreciation is only 2.82 per cent upon this sum, and can not, therefore, be regarded as an unreasonable allowance for that purpose.

However, I am clearly of the opinion that the present value of the Company's property and assets is largely in excess of $1,739,-894.00. A careful inventory and valuation of the Company's property and assets is now being made and I shall be happy to submit the same to you upon its completion. If you so desire, I will be glad to have the City Engineer co-operate with the engineers who are now engaged in making this inventory and valuation.

I shall also be pleased to afford full opportunity to you or the Superintendent of Finance and Accounts, or a committee of the Council to examine the books and records of the Company for the purpose of verifying the correctness of the above statements of revenue and expenditures and to that end will furnish you every facility for an exhaustive and satisfactory investigation.

When you shall have verified the statements above made I believe you, the Council and the people of Des Moines will recognize the fairness of our present charge for the service which we render.

Very respectfully, yours,

(Signed) JANSEN HAINES, *Manager.*"

To that communication Mr. MacVicar on the 25th day of November, 1910, replied as follows:

"Mr. Jansen Haines, Gen. Mgr. Des Moines Gas Co., Des Moines, Iowa.

DEAR SIR: I have your letter of the 22d and in reply beg to say, I regret exceedingly that my hopes for a speedy and amicable adjustment of gas rates at the expiration of our present agreement, January 1st, 1911, are possibly not to be fulfilled. I believe the reduction asked for, namely, from $1.00 to 90¢, a continuation of 2% of gross receipts to city and the installing at the expense of your company, a laboratory to be conducted by the city to test meters, quality and pressure of gas, should be granted.

I have read your letter carefully and note your figures upon which you express your belief that the 'Council and the people of Des Moines will recognize the fairness of our present charge for the service which we render.' I beg leave to say, however, that your belief is not well founded as far as I am personally con-
7 cerned and am inclined to think your figures will not convince the City Council or the people of Des Moines that the present rate of $1.00 per thousand cubic feet is a fair or reasonable rate for the service you render. I will not undertake to analyze your figures for my experience has taught me that such an undertaking would not perhaps be profitable for reasons which follow: I recall the fact that fifteen years ago your Company contested an ordinance reducing gas rates from $1.70 to (as I recall) $1.25 and proved to the court that gas could not be made in Des Moines profitably for less than $1.70. I also recall that the figures which you presented to the court and on which it determined that the city ordinance reducing rates was void, did not convince the people of Des Moines, and in their behalf certain of the press and a committee of citizens kept up a vigorous demand for a reduction in rates until questionable methods were resorted to whereby a large sum of money was paid to a newspaper in an attempt to stifle this demand of the press and the people for cheaper gas. An exposure of this questionable transaction by the editor at a meeting of the City Council, at which it was understood an ordinance satisfactory to your Company was to be passed, promises for the adoption of which were said to be secured by means quite as questionable and more criminal than the means resorted to to suppress the newspapers. In the face of the exposure the ordinance failed to pass and your Company made a reasonable proposition for settlement which was approved by the Citizens' Committee and by the City Council, covering a period of fifteen years. The new rate began at $1.30 per thousand on a sliding scale which finally reduced the price to the present rate of $1.00, which has maintained for the past five years. This agreement has been faithfully lived up to by the city and the time has arrived for readjustment of the contract.

I am not convinced by your figures, for observation has taught me that a few years ago when St. Paul was asking for a reduction of gas from $1. to 85¢ a gas engineer rendered a full and detailed statement of gas conditions in that city, and make the following remarkable showing. The engineer found that gas could not be

sold by the company with a profit for less than $1.40. He found, however, that if the company reorganized its plant and installed modern appliances, it could make gas at a profit for about $1.28, but no less. This expert gave these figures in the face of the fact that the company was selling gas for $1.00, and I believe offered to compromise with the city for 90¢ or 95¢. My observation goes further and shows me that gas is sold in Milwaukee by a private company at 60¢ and in Duluth under municipal ownership for 75¢. In Cincinnati by a private company from 50¢ to 75¢ and in Chicago at 85¢. Cedar Rapids has established in the Iowa courts a rate of 90¢.

I also recall further experience in our recent attempt to control water rates. Figures presented by the company to the courts resulted in the court finding that 30¢ per thousand gallons for water is too low to yield a reasonable profit to the company. To
8 be fair with them (from the court's standpoint), rates should be advanced. Des Moines was merely asking a moderate reduction to 20¢ per thousand gallons in face of the knowledge she has that many other cities are getting the same for 5¢, 6¢ and 7¢ per thousand gallons.

Permit me at this point to call attention to the fact that in spite of the convincing figures furnished, your company did agree to a rate of $1.30 at a time when it was claimed that the output of your company was but 50,000,000 feet per year, with a gross income of $46,159.50. Within five years your gross income increased to $190,416.50 per year and in ten years to $375,402.22 per year, and at the present time, according to your own figures, your output was over 526,000,000 feet, and gross income from sales of gas alone $526,293.50, a remarkable increase of more than 1,30¢ in fifteen years, while the increase in population of the city has been but little over 50%. I have also learned from the very best authority that within two years after this reduction in price for gas your company was making more money than ever before in its history. In the face of this material increase in output and profits, which was largely accomplished in the reduction of rates, it appears strange that your company hesitates to make another reasonable reduction at this time, which in my judgment would again increase the use of gas and profits to your company.

There was a time when your company claimed it could not furnish gas lower because it cost so much for coal shipped in from Virginia, but now I am advised you use no coal in the manufacture of the water gas which we are consuming, and your plea now is that it costs so much for coke in Des Moines. However this may be, the fact remains that Des Moines, while it is paying less than some cities, it is paying more for gas than many other cities no more advantageously situated than is Des Moines.

Des Moines is not getting a high class of gas for illuminating or heating in my judgment. A blue flame smoky gas such as we have, indicates, I believe, a low grade water gas which is highly

approved neither for heat or light unless mantles are used for lighting.

I note that your figures give only receipts from sales of gas and says nothing of the income from sales of by-products, which in the manufacture of gas is important.

In view of these facts the figures are not convincing, and if I am to take your letter as final I will feel justified in reporting to the council and ordinance fixing rates which in my judgment it would be fair to demand.

Respectfully,
(Signed)
JOHN MACVICAR,
Superintendent Department of Streets and Public Improvements.

9 To that communication, under date of November 26th, 1910, Mr. Haines replied as follows:

"Hon. John MacVicar, Supt., Department of Streets and Public Improvements, Des Moines, Iowa.

DEAR SIR: In reply to you- published letter of yesterday, copy of which I have not yet received, I beg to call your attention to my letter of the 22d inst. to you in which I submitted figures showing the gross revenue derived by this company from the sale of gas together with figures showing the net revenue after deducting operating expenses, taxes and depreciation, and also computation showing that this amount of net revenue would yield but 8% upon $1,739,894.00. I expressed the opinion that the present value of the plant and assets of the Company was largely in excess of this sum. I assumed that you (and the Council) would be interested in knowing the value of the property and the net revenue received under the present rate as it is apparent that the question, as to what is a reasonable rate for gas, could only be determined from these facts.

In your reply to me under date of November 25, 1910, you say the figures submitted are not convincing. You will observe that I did not ask you to accept my unsupported statement as to the accuracy of the figures, but that I invited the fullest investigation of them by the city. To this end I offered to submit for your inspection the books and records of the Company and further invited your cooperation in ascertaining the present value of the property. I have done this, believing that it was only by this means that the city could be fully informed as to the facts upon which a just and reasonable rate could be based.

In your reply to me you do not point out any other method by which a reasonable rate can be determined. You say, that, if I do not recede from the position taken in my communication to you, you will feel justified in reporting to the council an ordinance fixing rates, which in your judgment will be fair. You thus indicate your purpose in fixing a fair rate in the ordinance which you propose introducing, but you do not advise me by what means the fairness of this rate is to be determined. If you have any other means of determining a fair rate than that indicated in my letter, I would be pleased to have you advise me.

You say that, while Des Moines is paying less for gas than
10 some other cities, it is paying more than many cities no more advantageously situated.

You appear to recognize the fact that gas rates in any particular city does not necessarily determine what would be a reasonable rate in Des Moines, and this is unquestionably true as local conditions effecting the question are seldom, if ever, precisely the same. For example, I do not understand you to claim that the exceedingly low rates in Cincinnati, Milwaukee and Duluth should be any criterion for Des Moines, as you have mentioned the lowest rates in the United States, or Canada, and because the Milwaukee rate you quote applies only to large consumers, the ordinary rate being 80¢ per thousand in addition to a monthly increment charge and because of the further fact that in Cincinnati only natural gas is sold.

In Milwaukee a large proportion of the gas furnished to the public is purchased as a by-product from the Milwaukee Coke & Gas Company. The Milwaukee Coke & Gas Company are manufacturers of coke and ammonia and use what is known as Semet Solvay Oven Process. The gas produced from this process is a by-product. This process can only be used successfully where there is a very large market for coke and where there is very low transportation charges on the coke used.

Milwaukee and Duluth, you will observe, are both available for very low cost water transportation from the coal fields of Pennsylvania by the Great Lakes.

Duluth, a municipal plant, purchases its gas from the Zenith Furnace Co., manufacturers of coke, tar and ammonia, the coke being used for ore furnaces in the great iron district of Duluth.

The process of manufacture used by the Zenith Furnace Company of Duluth, is known as the Otto Hoffman Process and is something similar to the process of manufacture in Milwaukee. The gas furnished to the people in Duluth, however, is but seventeen candle power as against twenty-two candle power in Des Moines.

You will observe from these few instances that the price obtaining in other cities depends entirely on the local conditions and the comparisons cannot be made with Des Moines unless a comparison of these conditions is taken into account.

I will be pleased to furnish you any information obtainable to bring these comparisons in price to a comparison of local conditions. I have a very large and complete library on the sub-
11 ject and will be pleased to afford you every facility for using the same.

I submit this communication to you in the hope that you will reconsider your purpose not to make an investigation of the conditions of the company.

Very respectfully yours,

(Signed) JANSEN HAINES, *Manager.*"

Now, in reply to that Mr. MacVicar, under date of November 29, 1910, wrote:

"Mr. Jansen Haines, Mgr., Des Moines Gas Company, Des Moines, Iowa.

DEAR SIR: I beg to say that I am not impressed with your continued appeal for an examination into the net revenue of your company before determining what reduction in gas rates Des Moines is entitled to under the new agreement which must be entered into January 1st, 1911. I do not assume that the question of the expense of production should not be considered in determining what is a fair rate for gas. An examination of your books and property which would determine whether you are entitled to earn a return on a $2,000,000.00 investment on your plant would of necessity cover the entire period of the life of your plant and involve many months' investigation by expert bookkeepers and engineers involving a considerable expense with only questionable results, leaving the real issue of whether or not Des Moines is entitled to a reasonable rate, as compared with what other cities are paying, for determination in the courts.

It is probable the city will desire to accept your offer and make some examination of your books. I am impressed, however, when I enter your spacious counting room and view the great array of clerks and volumes of books, and where I recall former experience of gas and other public service investigations, that possibly your books are kept more with a view to supporting a high rate for gas than showing a reasonable cost or your real profits.

Referring to your letter of the 26th inst. wherein you state, in mentioning gas rates, in Cincinnati at 50¢ and 75¢, in Milwaukee at 60¢ and Duluth at 75¢, that I name the lowest rates in the United States and Canada. This is not strictly correct and I call your attention to the rates in Hamilton, Ohio, by private corporation at 30¢ per thousand cubic feet and by municipal plant at 80¢. This is a combination coal and water gas while Des Moines gets only water gas. Grand Rapids 50¢ to 90¢, combination coal and water gas. Detroit, Mich., 50¢ to 80¢, combination coal and water gas. Cleveland, Ohio, 75¢, combination coal and water gas. Springfield, Ohio, 85¢. You further state that the rate I quote of 50¢ to 75¢ in Cincinnati is for natural gas. I find that natural gas is sold in Cincinnati at from 12¢ to 30¢. It is likely that this has put manufactured gas / largely out of the market but previous to 1909 manufactured gas was sold in Cincinnati at from 50¢ to 75¢, as stated in my former letter.

12

You will pardon me if I have the suspicion that your sudden and unexpected demand for an examination of your books is more for the purpose of delay than for determining a reasonable rate. I have reason to believe that not only your Gas Company but our Water and Street Railway Companies, with the support of the Telephone Company, have determined to support in the next legislature a public utilities measure similar to the bill before the legislature two years ago, which will take the regulation of rates for public services out of the hands of the city council and the people, and place it in a State Board to be appointed by the Governor.

I learn that you, in company with N. T. Guernsey, attorney

for many of our local corporations; Geo. B. Hippe and Harry Polk, of the Des Moines City Railway Company and other well known citizens of the state of Iowa, who are supposed to be influential in controlling state legislation, recently held a conference in Chicago. I want to ask if there was not discussed at this meeting the support of the public utilities bill which Senator Sammis says will be introduced early in the session of the next legislature. Confirming this suspicion I yesterday overheard Attorney Reed in his argument before the District Court at Adel, in referring to this public utilities measure, say that the passage of such a bill depriving the city council and the people of the right to regulate public service companies was "an end most devoutly to be wished."

Respectfully,

(Signed) JOHN MACVICAR,

Superintendent, Department of Streets and Public Improvements."

13 Under date of December 2, 1910, Mr. Haines replied to that communication as follows:

"Hon. John MacVicar, Supt., Department of Streets and Public Improvements, Des Moines, Iowa.

DEAR SIR: Replying to your favor of the 29th ultimo, I beg to say that in my letter of November *of* 22d I stated that the 'fundamental principle which has been firmly established by the decisions of the Courts of Last Resort, both State and Federal,' and which I might add has been adopted by the Public Utilities Commissions in various states, is as follows:

The company is entitled to a rate which will, after the payment of operating expenses and taxes, and after deducting a reasonable allowance for depreciation, leave a sum sufficient to afford it reasonable interest and profits upon the present value of its plant and assets, taking into consideration the character of the investment.

You state in your letter of the 29th ultimo that you are not impressed with my continued appeal for an examination into the net revenues of this Company before determining what reductions in gas rates Des Moines is entitled to. You further state that it will take many months of investigation by expert bookkeepers and engineers, involving a considerable expense, etc., to do this work.

By referring again to my letter of November 22d you will find that I stated that 'a careful inventory and valuation of the Company's property and assets is now being made and I shall be happy to submit the same to you upon its completion. If you so desire I will be glad to have the City Engineer co-operate with the engineers now engaged in making this inventory and valuation.'

The particular reason that prompted this proposition was to avoid the delay and expense you mention in your letter. This is an engineering problem simple of solution, but requiring careful and painstaking detail and your City Engineer, because of his knowledge of local condition, should, I believe, be well qualified to cooperate with our engineers in this work.

I would respectfully suggest that, in order to avoid any further

delay and additional expense, you instruct your engineer to co-operate with our engineers, who are now making this inventory and valuation of the plant and assets of this Company. This
14 work is well under way, but is in such condition that the accuracy of the data already collected may be easily checked and time thus saved.

Insofar as the examination of our books to verify the statements, of net earnings contained in my letter of November 22d, is concerned, I beg to say that this may proceed at the pleasure of the Council, and that, while I realize that some delay may be occasioned by this work, I do not wish you to consider for a moment that it is my desire to take advantage of this delay, nor is it clear to me that any possible benefit could accrue from delay.

This proposition, which is made in good faith, is for the sole purpose of giving to the City the fullest information as to the facts from which my claim, that the present rate is no more than reasonable is based.

The preemptory passage, at this time, of an ordinance which by its terms would be unremunerative and therefore lead to litigation, would be subject to all the objection of delay referred to in your letter, and indeed would cause very much greater delay, for a final decision in the courts could not be hoped for under two or three years.

It is my earnest desire to avoid, if possible, the tremendous expense of such litigation, which ultimately must be borne by the consumer and taxpayer and which in a question of this kind would be sufficient to rebuild the Locust Street bridge, or pay for $1,000 acres of park land, or run the entire police and fire department for a period of nine months.

There seems to be in your letter a note of suspicion, but let me say that there are no mysteries or secrets in the gas business; there is nothing to conceal or withhold. The nature of the business involves many problems requiring the highest engineering skill and resourcefulness. Doubtless these problems and terms appear mysterious to the man engaged in some other pursuit, but we stand ready at any time to explain and describe to any interested party the processes used, the methods employed and the results obtained.

I regret that you should have expressed the belief that our books are kept with a view of supporting a high rate for gas, thereby implying that a bogus set of books is being kept for the purpose of deception. Even though you have no faith whatever in my honesty, or that of the Company, which I represent, had you stopped to consider the position in which we would be placed by pursuing such a course, I am sure you would not have made such a statement.

15 Referring to the rates quoted in your letter I beg to say that many instances of rates, both lower and higher than in Des Moines, can be quoted, but the rate established for any given locality must depend entirely upon the local conditions and upon the return provided by such a rate on the value of the property required to produce it.

You will find by application to the cities, whose rates are quoted in your letter, that generally their initial rate is for say the first 5,000 or

10,000, and sometimes 50,000 cubic feet of gas consumed, and for the next similar amount a reduction is granted, and for very large consumers a very low rate is made. Cities that have adopted this plan claim, as I understand it, that it is fair because of the fact that the accounts of small consumers occasion as much, or more, investment and expense in handling as the large ones, yet they yield but small revenue. This principle is recognized by such rate making bodies as the Utilities Commission of Massachusetts, New York and Wisconsin.

In reply to the question contained in the last paragraph of your letter, which I quote as follows:

'I learn that you, in company with N. T. Guernsey, attorney for many of our local corporations, Geo. B. Hippee and Harry Polk, of the Des Moines City Railway, and other well known citizens of the State of Iowa, who are supposed to be influential in controlling state legislation, recently held a conference in Chicago. I want to ask if there was not discussed at this meeting the support of the public utilities bill, which Senator Sammis says will be introduced early in the session of the next legislature.'

I have to inform you, that if any such conference, as you refer to was held, I had no knowledge of it; that I did not hold a conference with the gentlemen named, or any of them, nor was I invited to attend any such conference; that I have never, at any time, attended a conference in Chicago with the gentlemen named, or anyone else, called for the purpose of considering a public utilities measure in the Iowa legislature. This may be due to the fact that it is well known that I have not favored such a measure. I have believed that under the commission form of government, such as we have in Des Moines, such problems as the gas rates could, and should, be settled as business matters. At the same time it is obvious that no better argument can be used by those favoring a utilities commission than the fact that the adjustment of rates and regulation of utilities by local authorities has led in the past to unsettled conditions,
16 impairment of credit, and inefficiency of service.

I again beg of you to cooperate with me in making the inventory and valuation of the Company's plant and assets and verify the figures submitted to you in my letter of the 23d ultimo.

Very respectfully yours,
(Signed) JANSON HAINES, *Manager.*"

Under date of December 2nd, 1910, Mr. MacVicar wrote Mr. Haines as follows:

"Mr. Janson Haines, Mgr. Des Moines Gas Co., Des Moines, Iowa.

MY DEAR MR. HAINES: I have asked City Engineer John Budd to take up with you the matter of the inventory of your plant. He will delegate Mr. Maxwell of his department to personally investigate this matter.

Thanking you for this opportunity, I am,
Respectfully,
(Signed) JOHN MACVICAR,
Superintendent Department of Streets and Public Improvements."

On December 3rd Mr. MacVicar wrote Mr. Haines as follows:

"DEAR SIR: Is my information incorrect which is that you were in Chicago on or about November 1st with N. T. Guernsey, Geo. B. Hippe, H. H. Polk and others, or any or all of them.

Awaiting your answer, I am,

Respectfully,

(Signed) JOHN MACVICAR."

On the 27th day of December, without waiting for the completion of this inventory and appraisement of the property, without ever having availed themselves of the opportunity offered to investigate the records of the Company for the purpose of ascertaining the amount of their revenues, and their net revenues after deducting taxes and expenditures without ever in any manner doing anything to ascertain the value of the property, the amount which the Company had invested in the property, the City Council on that day received a report from Mr. MacVicar and from the City Solicitor, Mr. Robert Brennan, which it will be our purpose, at the proper time, to offer in evidence, but I will not stop now to read it.

17

Immediately upon the filing of the report which contained a proposed ordinance, the City Council, without notifying Mr. Haines, without giving Mr. Haines any opportunity to be heard, without affording the Company the slightest opportunity to come before the council and make its showing as to what would be a reasonable return upon its property devoted to this public use, without, as I say, any investigation into the situation, and under a suspension of the rules passed that ordinance of November 27th. Knowledge of its passage only came to Mr. Haines on the 28th, and as I recall it, through the public press.

Now that is the ordinance which we are here attacking as being invalid, and it reads as follows:

"An ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for a violation thereof.

Be it ordained by the City Council of the City of Des Moines:

SECTION 1. From and after the first day of January, A. D. 1911, the rate to be charged and collected for gas by any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants, is hereby fixed as follows, to-wit: Ninety (90) cents for each one thousand cubic feet.

SECTION 2. If any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants shall reduce the price of gas to its patrons below the price fixed in this ordinance, then any such person, firm or corporation shall not charge any person or persons for gas, a price in excess of that which said person, firm or corporation has charged any other person. The provisions of this section shall not be construed to prohibit special contracts for lower rates to large consumers.

18

SECTION 3. Any person, firm or corporation using the streets, highways, avenues, alleys or public places of said city in supplying or distributing gas shall pay to the City Treasurer for the use of said City of Des Moines, as a license or occupation fee, for each year that the streets, highways, avenues, alleys and public places of said City are used in supplying or distributing gas, beginning January 1st, A. D. 1911, two (2) per cent of the gross receipts for gas sold during such year; the same to be paid semi-annually and within thirty (30) days after the expiration of the preceding six (6) months."

Just in passing, before we leave that section, you will observe that it provides for the payment of two per cent of the gross receipts to the City as a license or occupation fee. Now, our contention is, and I think we are amply justified in that contention by the holdings of our courts, that is an illegal exaction. That is a provision which was in the old ordinance, which was contractural in character, and is a provision which the Company has at all times submitted to.

The MASTER: The amount so paid would include the expenditures?

Judge CARR: Yes, this has been included in the expenses—as a part of the tax. As I say, I wanted to call your Honor's attention to that at this time. What our ultimate position may be I am not prepared to say. We have not yet attacked that feature of the ordinance as being invalid. Heretofore we have been in a position of submitting to that exaction. It is significant in this, with
19 that provision in the ordinance submitted to by the Company, it actually makes a rate, not of ninety cents, but of eighty-eight cents or a fraction over, because the City gets of what we receive of the consumer at a ninety cent rate, at last two per cent.

"SECTION 4. Any person, firm or corporation supplying or distributing gas to said City of Des Moines or its inhabitants, shall furnish gas of not less than twenty-two (22) candle power.

SECTION 5. Nothing in this ordinance contained shall ever be construed to in any manner recognize any franchise or other rights claimed by any person, firm or corporation to use the streets, highways, avenues, alleys or other public places of said City for the purpose of laying or maintaining mains and pipes in supplying or distributing gas to said City or its inhabitants.

SECTION 6. Any person, firm or corporation supplying or distributing gas to said City of Des Moines, or its inhabitants, or any officer, agent, collector or employé of such person, firm or corporation who shall charge, demand collect or receive any rate or compensation for gas supplied or distributed to said City of Des Moines, or to any inhabitant thereof, in excess of the rate fixed by the ordinance, or any person, firm or corporation or officer thereof failing to pay the license fee provided for herein, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine in a sum not exceeding one hundred dollars ($100.00) or by imprisonment in the City jail for a period not exceeding thirty (30) days

SECTION 7. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 8. This ordinance being deemed urgent for the imme-

diate preservation of public peace, health and safety, shall be in full force and effect from and after the first day of January A. D. 1911, and after its passage and publication as provided by law."

In regard to section 8, I want to call your Honor's attention to that provision of the law under which ordinarily an ordinance shall not go into effect until ten days after its passage, except where there is an urgency for the preservation of the public peace, health
19½ and safety. Now that kind of an urgency provision was put into this ordinance. It is not very apparent just how any public peace, health or safety would be involved or affected by the passage of this ordinance. I simply call attention to it as being one of the evidences, or an additional evidence of the haste and lack of consideration, as we contend, which actuated the City Council in the passage of this ordinance.

The MASTER: It does not affect the validity of the ordinance?

Judge CARR: We are making no point on that.

The MASTER: You are treating the ordinance as valid, but are assailing it on the ground that it is confiscatory?

Judge CARR: Yes, sir. The only attack made upon it is the one attack, that it does not afford a fair and reasonable return upon the property and is therefore confiscatory.

These matters to which I have been calling attention are for the purpose of showing the attitude of the parties, for the purpose of showing that this rate-making body whose duty it was under the law to investigate and inquire into the things which must of necessity be involved, and are involved, in determining a fair rate did not do that; they did not do what the court is now compelled to do, to investigate, first as to the value of the property; what money has the Gas Company invested or expended upon which they are entitled to a fair return; and the question of what return a given rate will yield, and then the ultimate question, will the return the Company will receive afford a fair return upon its property. I should here say our proof will show that while the City has suggested in this letter of Mr. MacVicar that an engineer should be put on the work for a short time while the inventory was being made, they never to this day have availed themselves of the invitation, and the continued invitation, to come and verify our statements as
20 to our revenue and to investigate our records, and our records have been open to them at all times for the purpose of making such investigation; and up to the present time no such investigation has been made.

Upon the passage of this ordinance, on the 27th day of December, on account of its drastic provisions, it became necessary for the complainant either to submit to it or seek relief in the courts. Thereupon a bill was prepared and presented to his honor, Judge McPherson, and a temporary restraining order was issued, which was followed later by a temporary injunction. The inquiry now of course is, whether the allegations of our bill are supported by the evidence.

Your Honor undoubtedly is aware, from what I have already said, that the question to be determined is whether this ordinance

will, if it goes into effect and operation, yield a fair return or revenue upon the property or the money which the Company has invested in this public utility.

The MASTER: That is the real question.

Judge CARR: That is the real, ultimate question. As I understand it, the courts will not attempt to make a rate, but they will inquire whether a rate which has been fixed by a rate-making body is a just and fair rate. That depends, of course, upon whether it is confiscatory in character.

The first subject of preliminary matters to which our evidence will be addressed will be the ascertainment of what the property is. Now at the time referred to in Mr. Haines' letter, a corps of engineers was put upon this property for the purpose of making a detailed and full inventory of it, and the work was pushed forward energetically and with as much speed as possible. We have the result of that work. We have it in the form of a bound volume containing a detailed inventory of all of the property of the
21 company, and that is accompanied by another volume which contains sketches of the buildings and apparatus and machinery of the Company—sketches of a character from which an expert, a contractor and builder, could take these plans and specifications and ascertain the cost of reproducing the property. It is also accompanied by quite a good many photographs which show the property generally and in some detail; and is also accompanied by maps which show the distribution systems of the Company, and by that we mean the mains and services laid under the street- over the city.

The MASTER: That is on the 10th day of January, 1911?

Judge CARR: It was made about the time of the correspondence, along in November and December, and completed some time during the winter and early spring.

The MASTER: It is an inventory up to January first?

Judge CARR: Yes, since January first. Our proof will go first to the establishment of that inventory. The City has been furnished with a copy of it several weeks ago. We have not learned yet whether it will be accepted as correct or not. I don't know how that will be. We will determine that before we get to that point. If it should be accepted by the City, it will shorten the taking of the evidence materially. If it is not, we shall show the correctness of the inventory by proof.

Having shown what property we have, then we shall bring evidence to show the value of the property. First of all, is the real estate. The Company has—I may not be accurate in all my statements—as I remember it, about two blocks and a half, ordinary city blocks of real estate, that is used and necessary to be used in connection with its business, the property upon which is located what we speak of as the manufacturing plant, or the plant of the Company. The evidence will show that it lies on the east side of the river, near the river; that it is advantageously located.
22 for that purpose, and centrally located with respect to the distribution district. It is not subject to overflow and is very ad-

vantageously located as to trackage facilities, which become an important matter. We shall bring witnesses who are familiar with the real estate values in Des Moines, for the purpose of establishing the value of that property, of the real estate, as unimproved property. I may say in passing, our evidence will show that the value of the property will be somewhere from $225,000.00 to $230,000.00, as unimproved property, depending upon its location and its advantageous location in all respects, and particularly as trackage property, and the amount of such property necessary for such purpose as that of the Des Moines Gas Company.

When we come to the question of the value of the property beyond the real estate, the rule is well settled that the most satisfactory way of ascertaining the value of the property of these public utilities, is by the reproduction method; that is, the inquiry is what would it cost to reproduce the property now. Then, of course, there is the element of depreciation if the property is not new, and of course these properties are generally not new; the amount of allowance, which is a matter of judgment, to be made to reduce the physical value of the property I am speaking of now below what it would cost now.

I might say our evidence upon that question, the physical value of the property—upon the value of the property including physical value, and another element of value we speak of as a going value will be shown by those who are experienced in that line of work; men who had experience in constructing gas plants, and engineers who will be able to give to your honor the result of their knowledge and experience for the purpose of ascertaining what it would cost to rebuild this plant now. It might be well to call your honor's attention here to the fact that there is involved in the prob-
23 lem more than the inquiry as to how much money it would take to procure the material and pay for the labor necessary to construct. There are other elements of costs that enter in, and of course cost makes for values. To give your Honor the thought in the concrete, I will inquire now what you would do if you were about to construct some large manufacturing enterprise or building, or large office building? What expenses would you necessarily be to? Suppose you were doing that as a corporation instead of an individual. You will readily see there is first involved the expense of incorporation—preparation of your articles of incorporation and the legal expenses attending it, and the procuring of a permit or license from the state of Iowa and payment of the corporation fee—all expenses you would have to bear in order to organize your corporation. Then you would have to procure your site.

The MASTER: It this corporation organized under the laws of the state?

JUDGE CARR: Yes. We shall introduce our articles of incorporation and show the date of organization. By the way, this Company has been referred to in this correspondence as having had certain litigation. That was not this Company. It was its predeces-

sor, the Capital City Gas & Light Company. This Company was organized in 1906.

The MASTER: And took that property over at that time?

JUDGE CARR: Yes, and ever since operated it.

The MASTER: By purchase?

JUDGE CARR: By purchase, yes.

As I said before, the next thing would be to procure your site, and you would very likely be put to the necessity of optioning certain property, because if you have to buy of several people, you could not buy and close the deal with one man and hope to get the other man to sell to you to advantage afterwards. Then after you had your real estate purchased there would be involved
24 the expense of your plans and you have to have an architect who can make plans for your property. Then contracts would have to be made with contractors, including the legal expenses incurred, along that line. Then during the period of construction there perhaps would be premiums on liability insurance for employés. You probably would not want to take the chances of a damage suit without some insurance; there would be at least that element entering into it. There would be the interest you would lose on your investment during the period of construction. If it took you three years to construct your buildings, you would have some of your money in at the start and you keep it invested during the three years and get no return on it until the end of the period. Then there are the taxes, and so on. That will be sufficient to call your Honor's attention to what we speak of commercially as overhead charges; and it will be shown by witnesses that there enters into the cost of such work and such property as the Des Moines Gas Company property many large items and dollars of money that you must put in, as well as pay for your material and labor to get the physical structure completed.

The Des Moines Gas Company, as I have stated, has this real estate and upon this real estate they have a good many buildings and machinery which cost a great deal of money to reproduce. I will give you what the evidence will show as accurately as I can as to the general character of our manufacturing plant. What brings it clearly to my mind more than anything else is to just follow the process of manufacture and may be it will come out in the evidence, and it may be interesting to know how we go about these things. I think in a few words I can give you some conception of the character and magnitude of the plant.

There enters into the manufacture of gas three elements, so far as the material is concerned; that is, this Company manufactures what is known as water gas. Now there are three crude or
25 raw materials which enters into it: steam, coke and crude petroleum. Now these three things are brought together and make up the product. That is done in this way: the steam is generated in a large boiler provided for the purpose. A large quantity of the coke is used and transported to Des Moines in car load lots and dumped into what is called coal sheds, which are situated ad-

vantageously with regard to the tracks and consist of a number of bins. Now this coke is placed in these bins from the cars and then it is taken by means of what is termed a buggy—hand barrow—to an elevator and there hoisted to a level of what is called the operating room and carried into the operating room. The steam is carried there by means of pipe. In the process of manufacturing, there is a structure that is known as a generator, that is a large steam generator eight or ten feet—we have several of them—but the largest is ten feet six inches in diameter and I think about eighteen feet in height. This generator is lined with fire brick, as indicated by the photograph I show you- Honor of those generators. Now, up in the operating room where this coke is taken, the top is removed from this generator and the coke is put down in there, and then by means of blowers it is heated to a white heat, so that you have a great mass of incandescent carbon—coke is pretty nearly pure carbon. Now, through that body of live coal is turned this steam either by forcing it up through from below or from above down; I think they can reverse the process; and the steam passing through this heated mass of carbon produces by chemical action what is known as water gas. Now this gas is non-illuminating; it has all the heat, but it is non-luminous; it burns a blue flame, but does not give off any light at all. In the process there, there unites with the blue flame gas a quantity of sulphurous compound. Now from the generator the gas is taken to another cylinder just like it, which is called the carbureter. In the interor of the carbureter there is fire brick laid in checker work form, and into the
26 carbureter is injected this crude petroleum, and coming in contact with these hot brick evaporates. The oil in its evaporized form unites with the water gas, forming carbureted water gas. It is the carbon in the oil that gives to the gas the illuminating property. Now this carbureted water gas is not in the proper condition yet; so it is carried over there into another cylinder of the same size, which is known as super heater where a very high temperature is uniformly maintained and the gas is subjected to that in this super heater, which has the effect of uniting and welding the carbon that comes from the water gas. Then you have your gas complete, but it is still not fit for use, because there are two general classes of impurities in it, one being the tar product, coming as I understand it, from the crude petroleum, and the other, the sulphur compounds, which are very objectionable producing a very disagreeable odor, like a rotton egg smell. The next thing is to get rid of these. So this gas is taken to a washer, another process condenser, where some of it is eliminated and then it is carried into what is called a relief holder. That is a large structure which costs a good deal of money. It still has the offensive elements that come from the sulphurous compound which must be eliminated. It is then taken from the relief holder to what is called a purifying house—four steel bins or boxes, 20 feet square and 7 or 8 feet deep. They are supplied with steel covers of great weight and can only be taken on and off by means of a moving crane. These boxes are placed upon iron or steel pillers. And in these boxes there is

placed what is called an oxide, or oxide of iron, which is composed of chips which they get from the planing mills, coarser than saw dust, but something of that order, and in that is placed iron filings which they obtain from machine shops, and that is treated to water and I think salt or something of that kind that makes the
27 iron rust. Then the boxes are filled with this oxide, and the gas when it comes from the relief holder is forced through these boxes, and the chemical reaction of the gas coming in contact with the iron fiber forms sulphate of iron, or something of that kind, and this removes the obnoxious element of the sulphur compound. Now that is adjusted that the gas may be put through the process of reversing the operation of each one of these boxes. That is, you can start box number one, two, three or four. By this process of reversing the boxes you can use all of them and maintain a uniform foulness. From there it is ready for use. Then it is carried to the station meter for measurement. That word meter does not convey to your Honor any idea of the expense of that meter As I recall it, I think it cost $8,000.00 From that meter it is carried into the holders. We have two holders; one capable of containing something over a million of cubic feet, and the other about half that size, and those are very expensive structures. From these holders the gas then enters the mains through what is called the governor.

This will give you some little or faint idea. I will not attempt to go into details of the structures at this time.

Then comes the distribution system. We have 182 miles of mains in the city of Des Moines, varying in size from the largest, 24 inches in diameter, down to about 4 inches. I call your Honor's attention to a plat here which will show the distribution system.

At this point I will say that in getting at the value of this property it will be our contention, and our proof will tend to show it, the value of these mains, that is the reproduction cost of the mains as laid under pavement. I apprehend our friends on the other side will contend that is not a proper element, and there are some
28 commissions, notably the Wisconsin Commission, which does not consider the cost of laying mains under paving in rate cases, unless it is shown that the pavement was actually laid before the main was put in. But our contention will be, and perhaps will be in dispute, that we are dealing all the time with the cost of reproduction; we are not dealing with the question of what a thing costs. When I speak of the value of our real estate, I do not mean what it cost us fifteen or twenty years ago; I mean what it costs today, or at the time concerning which the inquiry is directed.

The MASTER: What date do you claim for that?

Judge CARR: The ordinance was passed December 27th 1910. I think the evidence will show that there has been no material change. Our period of inquiry will practically be as of January 1st of this year. Now, as I say, the question is as to what it would cost to reproduce, as the inquiry is as of the present. What is the value of the property as of the present time, and that is to be ascertained by what is would cost to reproduce it. It is our contention that

we are entitled to a valuation upon the property that will ascertain and determine what will be the expense of the distribution system as it is at the present time or at the time of the inquiry, under pavement, less of course the element of depreciation.

There is involved in the inquiry, not simply the reproduced value of the physical property—or as some courts say, the bare bones of the property. We are dealing with a property which has a business. The courts have said in these rate making cases that you cannot attach a value to a franchise which a company gets from a city, in the way of a right to do business, while it may have a value for rate making purposes. They also say, what we speak of commercially, that good will is not an element to be considered

But the courts do recognize, as far as I am advised, even
29 in rate cases, as also in condemnation cases and assessment cases, they recognize what they have come to speak of as the going value, or the value of the property as a going concern, and it will be our contention, that there is a marked difference between the property completed and ready to do business, and a property which has attached to it a business already established. It costs money to get the business, and that makes for value.

To give you a clear conception of our thought, I can perhaps do no better than by giving a brief quotation from one or two of the courts. Take for example the Supreme Court of Massachusetts, in th- 60th N. E. Rep., 981, where it is said:

"It is plain that the real commercial market value of the property of the Water Company is, or may be, in fact, greater than the cost of reproduction, less depreciation, of the different features of the physical plant. Take for example a manufacturing plant. Suppose one manufacturing plant has been established for some ten years, and is doing a good business, and is sold as a going concern. It will sell for more on the market than a similar plant reproduced physically would sell for immediately on its completion, before it had acquired any business."

In a Connecticut case they have said:

"It was also proper for the commission to pay regard to the fact that the plaintiff had an established business, built up after experiments and changes during a long period. * * * It indisputedly had been so built up, and whatever had been sunk in experiments in order to secure, and with the result of securing, a good working plant, was properly considered as entering to some extent into the value of a plant."

The Supreme Court of the United States in the Omaha Water Works case said:

"That there is a difference between even the cost of duplication, less depreciation of the elements making up the Water Company plant, and the commercial value of the business as a going concern is evident."

30 In the case of National Water Works Company against Kansas City, Justice Brewer, who wrote the opinion, said:

"The original cost of the construction cannot control, for 'original cost' and 'present value' are not equivalent terms. Nor would the

mere cost of reproducing the Water Works plant be a fair test, because that does not take into account the value which flows from the established connections between the pipes and the buildings of the city. It is obvious that the mere cost of purchasing the land, constructing the buildings, putting in the machinery, and laying the pipes in the streets—in other words, the cost of reproduction—does not give the value of the property as it is today. A complete system of water works, such as the company has, without a single connection between the pipes in the streets and the buildings of the city, would be a property of much less value than that system connected, as it is, with so many buildings, and earnings, in consequence thereof, the money which it does earn. The fact that it is a system in operation, not only with a capacity to supply the city, but actually supplying many buildings in the city,—not only with a capacity to earn, but actually earning,—makes it true that 'the fair and equitable value' is something in excess of the cost of reproduction."

It may be said that rule is all right enough when you come to a condemnation case, but it is our contention that the courts do not so define it. I call your honor's attention to this element, as it will be one of the elements covered by the proof.

This element of going value has been recognized by the courts as a tangible thing, something that makes for value; something that attaches to the property and is a part of the property. The difficulty has been in finding the yard sticks by which to measure that value, and various methods have been adopted by the engineers who have studied this problem, for the purpose of trying to measure what that value is—something which everybody recognizes as an element, but just how to get at it is the question. Sometimes they have taken a percentage of the gross earnings. The Supreme Court of Oklahoma, as I recall it, allowed twenty per cent to be added to the physical value.

In our case, we shall introduce evidence by experts and we
31 will show the correct method, a method that will be persuasive and will satisfy the mind of the court not only that there is a very substantial element in a so-called going concern value, but that we have ascertained the way by which it is fairly and accurately measured.

At this time, 12 M. an adjournment was taken until 1:30 o'clock P. M.

32 TWO O'CLOCK P. M., WEDNESDAY, *July* 12, 1911.

Hon. George H. Carr continued his opening statement on behalf of Complainant, as follows:

If the court please, just a word further with regard to the proof with respect to the value of the property. As to the unimproved real estate as I have already said, we expect to bring men who are familiar with the values in Des Moines, because it seems to us that that would be the most competent and satisfactory evidence. But when we come to the value of the property in addition or beyond the value of the unimproved real estate, then we must go for our proof

farther than the local parties. That is for the reason that it seems to us no one is competent to inform the court as to the reproduction cost of a property like the gas plant, including all the various items that go into it, the manufacturing appliances and all that, excepting those who have by years of study and experience along this particular line fitted themselves to give an expert opinion on the subject. For that reason we shall present the testimony of a number of gentlemen who have had not only the preliminary education that fits them for it—preliminary education of civil engineers and preliminary education of specializing in this particular line, but men who have had years of experience in constructing and in reconstructing gas properties and who have become familiar with the property of the Des Moines Gas Company, not only from an inspection of the inventory which we have prepared and to which I have referred this forenoon, but from an actual examination of the property upon the ground.

There is involved in the question that confronts us in addition to what I have heretofore referred to, an element that we speak of as depreciation, or reserve depreciation distinguishing that from
33 the depreciation that must be allowed to ascertain the present value of the property, the depreciation over the property as it would be now. There is still another element that we will, I think, speak of generally in the evidence as reserve depreciation, or reserve for depreciation, to speak with perfect accuracy. Along that line the testimony will be directed to establish what amount should be set apart and allowed to meet that expenditure, and that is based upon this thought. When one has a manufacturing project or machinery of any kind, even the mains of a distribution system as they lie in the ground, there is a constant deterioration going on. If it is a machine, it wears out. Now you may by timely repairs preserve the life of your property to an extent, but it is manifest, and our common knowledge teaches us, that with all timely and needed repairs there comes a time when the mechanism is exhausted, is worn out, and if it is a structure like a pipe in the street there is a time when that is worn out and has to be replaced.

Your honor will see that what we are trying to get at in a case of this character is what rate of return will be equitable and just between the corporation and the public. A rate of return which would simply allow interest upon invested capital manifestly would not be just and equitable because in such a situation a corporation goes on for a given length of time, getting a fair return upon its investment, but at the end of that period its investment is gone, so that the courts and rate making bodies recognize that there is involved in the proposition the question of setting apart or making allowance of such sum as will be sufficient to replace the property at the end of the period of its usefulness. Our engineers will be able, I think, to give your honor from experience approximately the life of such a property, the composite life.

But there is another thing that I think will be brought
34 out in the evidence that enters into it and that is the element spoken of as obsolescence. That is to say, a piece of mechanism which you buy to-day to perform a certain function may be

the best available for the purpose for which you desire it and a year from now or five years from now that same piece of machinery may be so improved that economy requires you to discard your old machinery, although not worn out, and put in a more improved apparatus. We have only to think of the sowing — as your honor first knew the sowing machine, when we were younger men, and as they are now, or the reaper or harvester that perhaps we bound grain on or followed behind on the ground.

The MASTER: I don't know anything about those things as I quit the farm before they were used.

Judge CARR: Now what would a McCormick harvester—that was the first machine of that character I ever worked on—what would a McCormick harvester be worth to-day that was manufactured back in 1870 or '75, although it had been kept perfectly, had not been used, but kept stored and housed properly? We can see at once that it would be practically of no value. That is what is meant by obsolescence and that enters in somewhat. But the principle is, as I say, the elementary principle that when an investor puts his money into a public utility, justice and fair dealing between him and the public requires that he shall have such a return upon his investment as will not only award him a reasonable revenue from the property but will enable him to replace the property when it is worn out. In other words, he is entitled to not only his interest, but he is entitled to a net annual return that will enable him to preserve his capital.

We will probably in the evidence speak of depreciation reserve, or reserve for depreciation, and here again we shall have
35 difficulty perhaps in finding an exact yard stick by which to measure it. Our evidence will develop the subject coming from men of experience who have studied the subject largely and have had experience in dealing with the question and we shall learn from them what in their opinion should be set apart and reserved or what sum should be allowed, what sum should be taken into consideration and allowed for this element of reserve depreciation.

Then we come to the ultimate question in the case which is what is a fair return? What is a fair return? Of course, the first inquiry is what is the value of the property. That must be first found before you can determine what you will find a return upon. Our evidence will show that the value of the property of the Gas Company used and necessary to be used in its business as a going concern will be considerably in excess of three million of dollars, and for the purpose of an illustration I want to give your honor, I am going to assume three millions of dollars. That will be, as I say, considerably below what our evidence will show the value of this property to be, and considerably below what we alleged it to be. There have been before the courts numerous rate cases, in some of which the courts have said to the complainant company, "We are not satisfied that this rate will prove confiscatory of your property, you have not tried it out, you have not experimented with it, you do not know to what extent the decreasing of the price of gas is going to increase your output." On the showing now made,

as they have said in some cases, we will not grant relief. You may try this for a while and if after a practical trial it turns out that your apprehension in well founded, and that the rate will not produce a revenue which is a fair revenue, and it is confiscatory of your property, then we will give you relief. I apprehend
36 it will be contended here that it is experimental yet as to what will be the result of putting into effect this 90 cent ordinance. As to that, and it is within the allegation of our bill, I want to give your honor an outline of what our evidence will be. We shall show some results under the dollar rate. I am not going to attempt at this time to burden your mind with any mass of figures—I don't think that would be wise, you probably would not retain them now—but I want to show one or two figures as illustrative of what our experience has been under a dollar rate. They are not the figures that are alleged in the bill, but cover a somewhat different period. The average net return applicable to interest and profits for the five year period ending December 31st, 1910, which carries the period on beyond the allegation of the bill—you- honor remembers my statement at the time the bill was drawn the last period at which we could get complete figures was September 30th, but now being later, we are able to get figures up to the last of the year, the close of the year 1910. The average net return which could be used for interest and profits after taking out the charges that must be paid, operating expenses, taxes and the reasonable reserve for depreciation we have $117,291.68, and if we assume for the sake of argument a valuation of three millions, which I say again is not our claimed valuation of this property—we claim the valuation of this property is considerably in excess of that amount—but for the purpose of illustration only I am taking an assumed value of three millions of dollars. On that assumption of three millions of dollars the amount would give a return in the way of interest and profit of three and nine tenths of one per cent, or, putting it in round numbers, a little less then four per cent. That is the experience of this company during that period of five
37 years. Had the value of the property been the same during all that period that would have been the result under the dollar ordinance or dollar rate. Of course, the property five years ago was not worth as much as it is now by considerable. I do not know just the difference, but for the purpose of illustration, I am assuming five years ago, if the value of the property had been what it is today, our returns during that period under the dollar rate would have amounted to a trifle less than four per cent upon the investment.

Now try another illustration: take the return applicable to interest and profits, the net return for the year just ended, the year 1910, which I understand to be one of the best years, if not the best year perhaps in the history of the company. The profits for the year ending December 31, 1910, were $132,784.32, which on an assumed valuation of three million, would show a return of four and four-tenths per cent, or practically of four and one-half per cent.

The MASTER: Twenty thousand dollars difference in the net receipts between the two years?

Judge CARR: An increase for that year, yes sir, over the average for the five years. The first figure, $117,000 is the average for the five year period. It was not an increase of 1910 over 1909, but an increase of one year over the average for the five years period. Of course, Des Moines has been growing rapidly during that period. Now we say that on the assumption that I have made, which I think will be fully established by the proof we have, that our experience under the dollar rate would have only netted a return of four and one half per cent and surely that is not an amount that would cause investors to turn green with envy.

What would be the result of the ordinance had given us
38 a ninety cent rate. The result in net return for interest and profits for gas sold at ninety cents as provided by the ordinance the net return for 1910 would have been $73,885.29, instead of a return under the dollar rate for 1910 of $132,784.32. If we had only been getting ninety cents, the net return would only have been $73,885.29. In other words, cutting the return in two, because the ten per cent all comes out of the net return, which would make an interest earning on a valuation of three million of two and forty-six hundredths per cent, or two and a half per cent, in round numbers. The ultimate inquiry, I say, would be, is that a fair return?

On that subject, your honor, I want to ask the privilege to quote briefly from what Mr. Justice Beckham said in the Wilcox case against the New York Consolidated Gas Companies, reported in the 312th United States. This is only an excerpt of what he said in speaking of the subject of what is a fair return upon such an investment. "There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality. Among other things, the amount of risk in the business is a most important factor as well as the locality where the business is conducted and the rate expected and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them. One who invests his money in a business of a somewhat hazardous character is very properly held to have the right to a larger return without legislative interference than can be obtained from an investment in government bonds or other perfectly safe security."

39 In this case we shall claim that with regard to the question as to what is a fair return it is a matter of proof. Of course courts have some common knowledge on the subject, but we regard that as a matter that it is proper to put witnesses upon the stand who are competent to prove not the ultimate question perhaps as to what is the fair return. I do not mean that, but the earning capacity of money, the earning power of money in this community, and here is the inquiry, not in a money center like New York, but in Des Moines and under the conditions which prevail. To cover that proposition

we shall bring witnesses who are competent to tell your honor what the earning power of money is and that which is charged by them, because we think that is one of the things that enter in on money in Des Moines on a perfectly secure investment, money like where money is invested in such securities as a first mortgage bond in Iowa real estate say at half value, and I know of no safer security than that, that money this seeking investment demands a return of five and a half to six per cent. That if you have money to loan you can find ample opportunity to invest your money in such securities or other securities of a like stability and security at that rate of interest. So that you are having none or practically none of the hazard of which Mr. Justice Peckham speaks. There is no hazard ordinarily connected with loaning money on first mortgages on Iowa real estate at half or two thirds of its value. Now as Mr. Justice Peckham well remarks and he recognizes the fact that the rate of return which is given and expected upon an investment depends upon the risk which a man takes. We shall show that you could not get money in this country to invest in any ordinary business enterprise at any such return as that, that is, unless a man expected a return larger than six per cent. We can show I think if the mat-
40 ter for investigation that even a bank, and I don't know of any safer business enterprise than a well conducted bank—some hazard of course, but the risk is not large—I don't believe there is a banker in the city of Des Moines, but what if it was within the power of the legislature of the state of Iowa or the city council of Des Moines to say to the banker you shall not charge a rate of interest upon your loans which will net you a return of more than ten per cent, I don't believe we have got a bank in Des Moines but what would go out of business because investors would rather put their money into securities where they can get six per cent without any hazard, without any risk, without any annoyance, than invest it in the safest kind of business enterprise where there is no hope for a return beyond eight or ten per cent.

There is connected with the investment in the securities of a public utility like a gas company the risks of the ordinary business venture, perhaps not altogether the same but there is that same kind of a risk. In putting your money into a public utility the skill of management, the honesty of administration and all that enters in as a risk, as an element of risk in the business chance as it does in any ordinary enterprise. And beyond that there is an added risk and I think it is a matter that is properly to have in mind. If, as Judge Peckham says, the question of what you are entitled to as a fair return on the property depends upon the risk of the investment, then surely the added risk of which I shall speak should be kept in mind, and that is the risk which every investor in a public enterprise under the laws of this state incurs. His property is subject to regulation, the rates that he may receive are subject to determination by the rate making bodies. Of course if a rate is made which is con-
41 fiscatory, he may appeal to the courts for relief but the courts have no power to take the matter up and determine what is

an equitable and just rate, that must be left to town councils, city councils and in proper cases to the legislative body, where as we have in this case an illustration, the question of what is a fair rate is given mightly little consideration—mightly little consideration. Simply because it is said that nobody has got such and such a rate and without any inquiry into the subject as to what is a just rate, without determining the elements that necessarily enter into it the law making body fixes a rate. Now the investor has no hope of a rate that is larger which might be hoped for in some of the ordinary enterprises. He cannot hope for anything but this rate and he is in constant danger of being put in a position where he wont get this rate. There is hazard. Then, again, if the rate is made which is confiscatory and he appeals to the court for relief and the court gave him relief, holding the ordinance void or the law void—whatever it might be—the very next day the law making power can get together and make another rate, and then to the courts again for relief. There is that hazard. Then, again, there is the hazard that an investor in a public utility has of having his property taken—I don't mean without compensation—but taken. I apprehend if I was an investor with money in certain securities like real estate securities, something of that kind, in view of the fact that one of the things that makes such securities desirable in the length of time for which money is loaned so you have got nothing to do but look after your interest, no trouble and no expense in investment, long time investments as we all know are attractive and affect the rate of interest. A man puts his money into a five year farm mortgage or into
42 government bonds running ten, fifteen or twenty years, whatever it may be, and he knows he has got the investment for that period, but the fellow who puts his money into a public utility he don't know whether he has got an investment for six months or six weeks, because it is within the power of the city to condemn his property and take it from him. That enters in as a hazard of the business. Then, again, he don't know when he invests his money in a public utility how soon the city will say, well we ought to have competition, and it is within the province and power of the city, except in a few cases when exclusive franchises are given for a period, it is within the power of the city to license somebody else. All these things in addition to the ordinary business hazard enters into the question of what is a fair return on property for as Justice Peckham says, the fair return is to be determined by the risk which the man incurs in making the investment, so that we shall bring, as I say, investors, bankers and others in Des Moines to show the state of the money market in Des Moines. I assume that we must be confined to this as far as we can, if there is any market for money here, this is what governs. We shall bring investors for the purpose of showing what is the earning power of money in the various kinds of security with which we have to deal. I think now your honor, unless there is something that I have overlooked, that is all.

The MASTER: One question I wanted to ask you, this two per cent

that amounts to practically $10,000 a year; is that two per cent in lieu of taxes?

Judge CARR: No, sir; our property is assessed just as yours would be if you lived in Des Moines, a valuation is placed on it by the assessor and we pay taxes the same as anybody else and in addition to that pay two per cent as a license.

43 COURT: I suppose that is required then as so much for a franchise. The net receipts after taxes and expenses of all kinds the two per cent is taken out?

Judge CARR: That is my understanding of it. When we speak of net returns we mean the revenues which are left to us after the expenditures for operation and incidental repairs, not for reserve depreciation of course, but such repairs as we must make as we go along keeping up the property and for taxes including this occupation tax, that is what we have got left after we pay all charges.

COURT: The fund upon which you could declare a dividend.

Judge CARR: Yes, sir.

Opening statement by Robert G. Brennan on behalf of the defendants as follows:

May it please your honor:

It seems to us that counsel for the complainant in this case has traveled outside the scope of an opening statement preceding the introduction of the testimony in the case. However, we have no quarrel with counsel for having given the master the benefit of his views on the law and what he expects to cite in support of complainant's contention. He has called attention at the beginning of his statement to certain correspondence between one of the Commissioners of the city of Des Moines and the manager of the Des Moines Gas Company, complainant in this action.

The local Gas Company, of which the complainant is the successor in interest, is no stranger to the courts of this community, both of the State and of the Federal courts. Away back in 1893 a con-

troversy arose and an action was instituted by a citizen of the

44 State of Iowa and against the then Capital City Gas Light Company, growing out of an ordinance adopted by the City Council of the City of Des Moines, under a statute passed by the legislature. The City of Des Moines, in order to protect its interests under the ordinance, filed its petition of intervention in the said court and the right of the city to regulate rates was challenged in that proceeding. The court, however, determined that the statute was broad enough and specific enough to enable the city council to regulate the prices and charges which the company should charge and receive for the services rendered. Upon the trial of this case, the history of the organization of the company and an examination of the assets of the gas company was made and without going into detail, it will suffice to say, that the court held that by virtue of the ordinance which was in effect prior to the adoption of the ordinance, which had for its purpose the regulation of rates, that the city council was without power in that case to pass the ordinance

at the time that it was passed; but in this connection, I am reminded that I am a little ahead of the story. The District court held in the case to which reference has been made, that the local gas company was not able to manufacture and distribute its product to the city and the citizens for less than $1.40 per thousand cubic feet, if I remember rightly. After the District court had rendered its decision, the city council, in order to meet the suggestion of the District court, passed another ordinance in conformity with the views so expressed by said court. Then it was, by the filing of a supplemental petition on the part of the company, that the court decide that the city was without right to regulate the rates until the first day of January, 1896, notwithstanding
45 the general powers given under the statute, upheld the company's contention as set forth in its supplemental petition and held that the regulation prescribed by the ordinance premature. After the expiration, however, of the period fixed by the District court the City Council again passed an ordinance regulating and fixing prices or charges for gas in the City of Des Moines. Thereupon the company exhibited its bill in the United States Circuit Court for the Southern District of Iowa, and in that proceeding, the history of this company was gone into. The amount of real estate which it owned, the prices which it had paid for it, the number of miles of mains, the number of its consumers, were all investigated and determined. It was then contended on behalf of those who represented the City of Des Moines, that by reason and because of the reduction in the price of gas, that the output would increase and that the price fixed and established in the ordinance was reasonable. We make this statement to your honor in this connection from the fact that Mr. MacVicar, an individual member of the city council, is sharply criticised because he did not go to the extent that Mr. Haines suggested in carrying on his investigations, and on account of the attempt by counsel to leave the inference with your honor that the city council was relying entirely upon the information which Mr. MacVicar might secure through his negotiations with Mr. Haines, and that Mr. MacVicar's information on the subject was limited to a marked degree; whereas, in truth and in fact, the City of Des Moines was in possession of all the facts and testimony which had been introduced on these several trials, a part of which is preserved in the clerk's office in this court. We believe that an examination of the testimony taken on the former trials will disclose that the gas company was manufacturing
46 and distributing somewheres between forty-five and fifty million cubic feet of gas annually, and that the output of gas under the ordinance which was agreed to by the company and the city, commencing January 1st, 1896, and extending over a period of fifteen years, expiring on the 1st day of January, 1911, has increased over eleven hundred per cent. We further believe that as this trial progresses, your honor will see from an analysis of the testimony that at each period of the history of this ordinance, which was in force for the period of fifteen years, that at each five

year period, or when the price of gas was reduced automatically under its terms and provisions, that the increase in the output largely exceeded the natural growth and development of the city, and that the increased output was influenced largely by reason and because of the reduction in the rate. Mr. MacVicar, in his correspondence, was familiar with these circumstances; was familiar with the entire history of the litigation involving gas rates in the City of Des Moines extending back for a period of seventeen or eighteen years. That the city council was in possession of information that Cedar Rapids, a city in this State, had passed an ordinance regulating the price of gas and fixing it at ninety cents per thousand cubic feet. That a contest arose with respect to that ordinance; that it was carried through the district court of Linn County to the Supreme Court, and that said ordinance was sustained by the highest judicial tribunal of the State of Iowa. They also knew, or must have known, that the gas company operating in the city of St. Louis was contemplating a voluntary reduction in the price of gas, and that on the 1st day of May, 1911, as we understand it, it did voluntarily reduce the price of gas from something over one dollar down to eighty cents. The city council knew that our
47 neighboring city on the north, Minneapolis, had secured reductions in the price of gas from over one dollar per cubic feet to eighty and sixty cents. All of these changes were going on and were known to the members of the city council. It must have also been in the minds of those charged with the duty of fixing a reasonable rate; that even if Mr. MacVicar and Mr. Haines should carry on their negotiations for a reasonable length of time, there was no assurance that they would be able to reach anything like a definite conclusion. And in as much as the ordinance prescribing the rates for gas in the City of Des Moines would, by its terms, expire on January 1, 1911, it was quite necessary and expedient that action should be taken in the premises within a reasonable time.

Thereupon the city council, in the exercise of its legislative functions, saw fit to pass the ordinance of which complaint is made in this case and it is our contention that notwithstanding counsel has attempted to challenge the good faith of that ordinance and to cast the burden upon us to sustain it, that the ordinance, under the law, stands before your honor the expression of a deliberate legislative body, clothed with full authority in the premises and that every presumption recognized by the law obtains in its favor and that the burden of proof is now upon the complainant in this case, to show to your honor by at least a fair preponderance of the testimony, that the ordinance will not afford a reasonable return upon the investment and that the enforcement of this ordinance will result in the confiscation of the complainant's property, unless they can show that beyond any question, their suit must fail.

Now they speak about inviting the city authorities to investigate and to co-operate with the company in investigating the value of

the property in order to arrive at what would be a just rate
48 in the premises. They evidently have no more idea of what their property was worth than the city council or any one else, and that fact becomes very manifest in this case. We have simply to refer to the original bill which was filed in this case.

COURT: Two million seven hundred thousand Dollars?

Mr. BRENNAN: Yes, sir. In their original bill in this case they alleged under oath that the value of complainant's property was Two million seven hundred thousand dollars.

Judge CARR: I beg pardon, we didn't so allege, we alleged it was in excess of that.

Mr. BRENNAN: The allegation was that it was two million seven hundred thousand or upwards.

Now on the face of that bill it occurred to the representatives of the city, that the company was not entitled to the relief prayed for and when the matter came up before his honor, Judge McPherson, at Council Bluffs, the city interposed a demurrer because on the face of the bill, keeping in mind the amount of the receipts of the company from the sale and distribution of gas, it was earning five and fifteen hundredths per cent upon a dollar rate, and on a two million seven hundred thousand dollar capitalization. And keeping in mind also that it has been the experience of every community, which has undertaken the task of regulating and fixing reasonable rates, that the output of the product increased to such an extent that the company could afford to sell gas at the reduced price. Upon the filing of this demurrer, complainant in this case, in less than a week after having filed its original bill, filed the amendment herein in which it sets up that the value of its plant has increased from two million seven hundred thousand to the sum of four million ninety-

two thousand dollars. And thereupon the court stated that
49 it would overrule the city's demurrer pro forma, but without in any manner passing upon the merits of the original bill as exhibited. So it seems to us that at the very outset of this case, it is hardly proper for complainant or its counsel to challenge the motives of the legislative body which passed the ordinance in question when the complainant, or its predecessors, had been operating under an ordinance for fifteen years in this city and apparently becoming prosperous by reason of the profits earned thereunder, because your honor please, we say that there will be but one question, and that the litigation to which I have called your honor's attention, the company was capitalized at about Six hundred thousand dollars. That when this last organization was perfected in 1906, or the re-organization or merger, or whatever you may choose to term it, the capitalization was fixed at something like two and one-half millions. Notwithstanding all the facts and circumstances above suggested, we find that when the complainant in this case is confronted with a situation where a demurrer is about to be sustained, or should be sustained, they find it convenient to say that the value of their plant is four million ninety-two thousand dollars or upwards.

Now with regard to the questions involved in this case, if your honor please, we say that here will be but one question, and that

is a question of fact pure and simple. The questions of law in this case have been settled by the highest tribunals of the State and of the United States, so that we will be concerned, I take it, at arriving at what the fair reasonable investment of the complainant is, and what is necessary to render the service, such as it is rendering in this community; and unless the evidence shows by at least a fair preponderance of the testimony, that the return allowed by the ordinance will be so low as to amount to confiscation, then the bill must be recommended by your honor to be dismissed.

50 Now they complain about the two per cent clause that they are required to pay and which they have been paying as an occupation tax. The language of the ordinance in controversy is identical with the ordinance under which the complainant has been operating up to January 1, 1911. In other words, under the prior ordinance, the complainant was entitled to charge and receive of the consumers one dollar and ten cents gross.

COURT: How long had that ordinance been in force?

Mr. BRENNAN: Fifteen years.

COURT: Same rate for fifteen years?

Mr. BRENNAN: No, a sliding scale was provided in the ordinance so that at the end of the last five years the people were getting their gas at one dollar and ten cents gross; or, if they paid their bills on or before the 15th of the month, then they got it for one dollar.

COURT: Is there any time in this ordinance?

Mr. BRENNAN: No, no time is fixed in the ordinance whereby the consumer may get reduced rates. It is made ninety cents flat.

COURT: I mean is this extended for any length of time?

Mr. BRENNAN: The ordinance in question, no. It is not in any sense contractual, but it simply fixes the price of gas at ninety cents per thousand cubic feet.

COURT: I notice one peculiarity about it, not to be deemed as a matter of franchise.

Mr. BRENNAN: This ordinance and the prior ordinance to which we have called your attention expressly recites that nothing in the ordinance should ever be construed as granting any franchise, rights or privileges to use the streets. In other words, it was

51 the thought then, and it was the thought at the time the city council passed the ordinance effective from and after January 1, 1911, to eliminate any questions of franchise rights and to simply have the single question of the reasonableness of the rate involved, the company having operated its gas works for fifteen years and paying to the city on the basis of two per cent of its gross earnings. That is to say, the company had been paying that amount right along so that the two per cent clause as an occupation license inflicts no greater hardships upon the company than the former ordinance. It seems to us, therefore, that we will be concerned here principally in ascertaining the amount of the company's investment. That is the amount of a reasonable investment to perform this service.

COURT: That the real question is whether or not, considering the value of this plant, it is confiscatory.

Mr. BRENNAN: That seems to us the only question in this case. Of course, growing out of that counsel will impress their views upon you with regard to these risks, these extra-ordinary risks. The mere fact that the legislature of this state has delegated to a subordinate legislative tribunal the right to fix a rate which shall be reasonable, and that the courts, both state and federal, stand by as guardians of persons who have made their investments in public utilities, that notwithstanding all of these safeguards, that it is absurd to seriously insist that the consumer must pay an additional price for his gas because the legislature has seen fit to confer the powers of regulation upon a proper tribunal.

It is further contended in this case by counsel for the complainant in the opening statement, that the duplication rule is the only practical way of arriving at what this property is worth. Now it is true,
and we concede that the courts in the absence of something
52 better, have adopted this method and have allowed the parties
to introduce into the case what is called the duplication theory or rule, but the courts have said repeatedly that it is not the only way of arriving at the value of the property; but in some instances, is the most available one. In other words, if you have the books of the company; If you have a record of its investment; if you have a record of what it has charged off each year, or which it should have charged off each year for depreciation, you will be aided very materially at arriving at what is the true investment. But they say, that in considering this problem and carrying out this duplication method, that consideration must be given as to the amount that it would cost to lay its mains under paved streets. In other words, remove the present pavement, dig the trenches, place the pipes and service connections therein then cover the pipe, reconstruct the pavement in compliance with the ordinances of the city. They want the consumer to pay for all that in a rate case, even though the mains and service connections were laid in advance of the construction of the pavement. The commission of Wisconsin repudiated a claim of that character on the part of the gas company in a rate case. The Supreme court in this state in the Cedar Rapids Gas Co. repudiated it and they used in substance this language: They say that the theory of requiring the consumer to pay for the mains and for the excavations and reconstruction of the pavement loses sight of the fact that pavements are subject to the ravages of time; that they are reconstructed from time to time and that mains may be laid during the process of the construction or reconstruction of the pavement. It also loses sight of the fact they say, that the franchise
period may come to an end and that it would be necessary for
53 the company perhaps to remove its mains from the streets, in
which event, the company is required to take up the mains and restore the pavements.

So that among the contingencies which may arise in the operation of a gas works, two of which are suggested by the Supreme Court of the State of Iowa, negative the idea that the consumer, when we are concerned with a rate making case, must pay for all of these hazards which enter into the business.

COURT: While you are at it will you give me that case?

Mr. BRENNAN: Cedar Rapids Gas Light Co. vs. City of Cedar Rapids, 120 N. W. R. Page 966.

Again it is claimed on the part of counsel for the complainant that they are also entitled in a rate case to have added to the physical value of the property what is called its going concern value. We have been through that in a former inquiry of this court in the case of the Des Moines Water Company vs. City of Des Moines, now pending before his honor, Judge McPherson, on the exceptions to the Master's report. So far as his honor, Judge McPherson, is concerned, he has not passed upon the question of going value in a rate case, so far as we are advised.

COURT: Let me understand. Suppose these pipes prove to be worthless, not doing anything or not used. If they are ready to be used by a company which would charge whatever price they want to that would be a going concern of one kind. If they are to be used but subject to regulation, that would be a going concern of another kind.

Mr. BRENNAN: Yes, that is the point I was coming to. If
54 you are going to consider going value at all, in connection with an inquiry of this nature, you have first got to determine what would be a reasonable rate. Having ascertained what would be a reasonable rate, then your going value would be based upon the value of the income produced by that rate and not by an exorbitant charge. For instance, suppose that the company was earning a million dollars a year, based upon a two dollar rate. Now, if going value would be considered at all, it would not be fair to the consumer to charge him up with going value based upon that exorbitant rate. But of that we will have more to say when we come to discuss it after the evidence is in. We claim, however, and insist very seriously and strenuously that in a case where a rate is involved and where you have a company such as you have here enjoying a monopoly with no chance for competition, that going value should not be considered. They also speak in this case about having one hundred eighty-two miles of mains in their distribution system. They have mains, as I understand it, scattered all over the city. The city covers an area of some fifty-four square miles. They are anticipating the future to some extent. A few things like that will enter into this inquiry and become more significant as we proceed.

COURT: If I catch your thought there you claim that they have got a great deal of property, their money invested with respect to the future and no need of it at the present, is that the idea?

BRENNAN: That is the idea. Just as to what the extent of that is we are not now able to state, but we expect to show by the evidence in this case.

Now if your honor has examined the Knoxville Water Company case against the City of Knoxville, a case that was decided about
55 the same time that the Wilcox case was decided, you no doubt, will recall that the Supreme Court of the United States refused to pass upon the right of the water company to have this going value considered in a rate case. That the Supreme court said

they did not have to consider that question, and that it was not decided in that case. We make no question that if we were condemning the Des Moines Gas Company's works, or if we were purchasing we would not expect nor would it be just that we should expect to take that property over at its physical value.

COURT: You mean by that what it cost to put it there.

Mr. BRENNAN: The cost of putting it there and allowing a reasonable sum for the business they have created. But where you have a company occupying the field, enjoying a monopoly, and the question comes up, what is a reasonable rate, it is not just to allow the company to add one, two, three or four millions of dollars of going value in order to keep up the price. We say that to permit this would certainly work a grave injustice to the consumers. And then keeping in mind also that during the early period of this company, they were charging $1.40, $1.45 and perhaps $1.70 extending over a period of years. They say that this going value is introduced and is legitimate for the purpose of reimbursing the company for the losses which it incurred in the early history or formative period of the company and that these losses are returned to it through this going value theory. But it must be kept in mind that the amount they were charging during the early years, as compared with what they have been charging and receiving the passed fifteen years. Just as the Supreme court of the United States in the Knoxville Water case when they undertook to have added a certain per cent of rate depreciation, that it would not be fair and just to the consumer because it was the duty of the water company
56 and its officers as practical business men engaged in an enterprise of that character, to anticipate that the physical property would wear out and become extinct and therefore, good business judgment suggested that a depreciation account should have been kept from the installment of the plant. And the court would not allow the company at such a late date to come in and charge up to the consumer an amount for depreciation sufficient to spread it over a series of twenty or thirty years, but that the company should start in now as to what would be fair each year. So that the depreciation account properly invested would extinguish the original cost of the property within a certain number of years. That is the theory. Apply that common sense theory of depreciation as the Supreme court applied it. If you are going to allow going value at all, you must allow it upon that same theory.

The other case to which counsel refers, the Kansas City case decided by Mr. Justice Brewer, I think Judge Carr made reference to that case as upholding the theory that they were entitled to the going value. If I remember rightly in analyzing that case, it cannot be determined that the court allowed any specific sum as going value. As I recall the facts, the city officials had consented to an encumbrance being placed against the properties and the company adopted the value which the parties had placed upon the property. And while the court did go into the question of going value and attempted to differentiate between property which was just starting and one which was earning an income, yet when you come to analyze

the case, you will see that the amount which the court placed upon the property as representing its true value did not take into account any going value. I think that the case of the Omaha Water Company clearly distinguishes between a purchase case and one which involves a rate but as I said before these matters are more or
57 less outside the scope of an opening statement. You will have the benefit as the city council had the benefit of the history of this plant from its organization in this city. You will know the amount of its capital, how much it was capitalized at so many years ago when this re-organization was affected, the number of miles it had when this litigation occurred in the state courts and in the federal courts. You will know what has been added to it since; you will know from records in that case just what its real estate cost them, where it is situated and all about it and whether they have added to their holdings since that time. You will have all that before you just as the city council had it before it, and if it becomes competent, we expect to introduce and show what other cities similarly located are paying for gas, and while we have no doubt with regard to the ability and skill of the several witnesses summoned here on the part of the complainant, modesty forbids us to tell about our witnesses to any great extent, but we feel confident that Prof. Marks and the other witnesses that we shall introduce here will measure up with equal efficiency with the witnesses for the complainant in this case. So, if your honor please, we are brought here into this court by the complainant in this case. It charges that the ordinance has the effect of confiscating its property. We have traversed the material allegations of the bill, we say that experience has taught that the reduction in the price of gas will result in an increase in the output to such an extent that this company can well afford to furnish gas to the consumers of this city for ninety cents. We are confident of our position, the city council was confident of its position when it passed the ordinance. We believe that the foregoing statement in a general way outlines the position of the defendants in this case.

58 JULY 13, 1911.

Forenoon Session.

Convened at 9:30 o'clock A. M.

Complainant's Testimony.

Judge CARR: The complainant offers and reads in evidence Exhibit No. 1, which is a certified copy of the record of the articles of incorporation of complainant, duly certified by the Secretary of State of the State of Iowa, as follows:

"THE STATE OF IOWA,
Secretary of State:

I, W. C. Hayward, secretary of State of the State of Iowa, do hereby certify that the attached instrument of writing is a true

and correct copy of the articles of incorporation of the Des Moines Gas Company, of Des Moines, Polk County, Iowa, as the same appear of record in this office.

In testimony whereof, I have hereunto set my hand and affixed the seal of the Secretary of State of the State of Iowa. Done at Des Moines, the capital of the state, this 22nd day of February, A. D. 1911.

[SEAL.] (Signed) W. C. HAYWARD,
Secretary of State."

"*Des Moines Gas Company.*

"Know all men by these presents, That we, the Undersigned, for ourselves, our successors and associates, do hereby form and organize a body corporate for the purpose of pecuniary profit, and for the purposes hereinafter expressed, under and by virtue
59 of the laws of the State of Iowa, and under the provisions of Chapter 1, Title IX, of the Code of Iowa, and for that purpose do hereby adopt, execute and acknowledge the following Articles of Incorporation:

Article I.

The name of this corporation shall be Des Moines Gas Company. The principal place for the transaction of its business shall be at Des Moines, Polk County, Iowa, with the right to establish and maintain branch offices at such other points as the Board of Directors of said corporation may from time to time determine.

Article II.

The general nature of the business to be transacted by said corporation shall be to own, operate and maintain gas plants in the city of Des Moines, Iowa, and in any other place or places in the State of Iowa, and to construct and erect all buildings and improvements of every kind and nature necessary to conduct and carry on the gas business, and to lay an- maintain gas pipes and mains, and to erect and maintain gas posts and fixtures, and to manufactire gas and to furnish the same for heat, light and power, or any of them, from said plant or plants, and to make all necessary and adequate connections with the said pipes and mains for the purpose of distributing said gas to consumers of the same.

And the said corporation shall have the power to buy, own hold or lease any real estate that may be deemed necessary to the transaction and conduct of its business, and sell or lease any portion of the same from time to time as may be deemed necessary, and
60 shall have power to buy, own, purchase and deal in all kinds of tools, appliances, goods, wares and merchandise, and any and all other material that it may require or deem necessary in the transaction of its business, with the right to sell and dispose of any portion of the same, to make and execute any and all necessary contract or contracts with any municipality or municipalities, individ-

uals, firms or corporations with relation to the furnishing of gas for any purpose whatever.

The said corporation shall also have power to buy, purchase and own any franchise or franchises from any other person, firm or corporation, granted to such person, firm or corporation for the purpose of operating gas plants or laying down and locating gas pipes and mains.

And the said corporation especially shall have the power to buy, purchase and own all the property, real, personal or mixed, and all the rights, franchises, licenses and privileges heretofore granted to or held by the Capital City Gas Light Company and to carry out, and execute, all contracts heretofore made by said Company.

The said corporation shall have power to do every act necessary to operate and maintain gas plants for the purpose of furnishing light, heat, power or fuel in the city of Des Moines, Iowa, and any other place or places as the Board of Directors may from time to time determine.

The said corporation shall also have power to issue its notes, bonds, or other evidence of debt, and to secure the same, or any part thereof, by a mortgage or deed of trust upon any or all of its real or personal property, and upon all of its franchises, rights, licenses and privileges, and upon all or any portion of its gas pipes or mains, and all machinery, appliances, material, and every article of
61 property that may be owned by it, together with all franchises obtained by it from any municipality or municipalities.

And the said corporation shall also have power to buy, own, purchase and sell any stock of any other corporation that its Board of Directors may determine, and shall have all powers given by law to corporations for pecuniary profit necessary for the proper and legitimate conduct of its business.

Article III.

The amount of the unauthorized capital stock of said corporation shall be Two Million two hundred and fifty thousand dollars ($2,250,000.00) divided into Twenty-two thousand five hundred (22,500) shares, of the par value of one hundred dollars ($100) each.

Whatever of said stock shall be subscribed, the same shall be paid for at such times and in such manner as the Board of Directors may order and determine.

Article IV.

The time of commencement of said corporation shall be on the first day of March, 1906, and shall continue for a period of twenty (20) years thereafter, with the right of renewal or dissolution thereof, as provided by the statutes of the State of Iowa.

Article V.

The affairs of said corporation shall be conducted by a Board of five (5) Directors, who shall be elected by the stockholders at each annual meeting thereof, to be held in each year on the first Tuesday

in April, and the first annual election of said corporation shall be held on the First Tuesday in April, A. D. 1907, and until the first annual election, or until their successors are chosen, the following named persons shall constitute and be a provisional board of directors, to-wit:

62 Geo. H. Carr, James P. Hewett, Craig T. Wright, F. Corlies Morgan, Rollin Norris.

The Board of Directors shall elect as the officers of said corporation a President, one or more Vice-Presidents, a Secretary, an Assistant Secretary, a Treasurer and an Assistant Treasurer.

The board shall also have authority to appoint such other managing officers or agents as they may from time to time determine.

At all meetings of the stockholders of said corporation each share of stock shall be entitled to one (1) vote, either in person or ny proxy, duly authorized in writing.

Until the first annual election, or until their successors are chosen, the provisional Board as herein nominated shall have all the powers of the regularly elected Board of Directors of the corporation, and shall, after these articles are recorded and certificate of Incorporation issued, meet and elect the officers herein defined.

Special meeting of the stockholders of the corporation may be called at any time by the President, (or ny any one of the Vice-Presidents in case of the absence or disability of the President), or upon the written request of the holders of one-third of the capital stock outstanding at the time, on five days' notice to each stockholder, by mail, at his last known post office address, specifying the time, place and object of said special meeting.

All vacancies in the membership of the Board of Directors and all vacancies in the offices of said corporation shall be filled by the Board of Directors.

Article VI.

63 The highest amount of indebtedness to which the said corporation shall at any time subject itself shall not exceed two-thirds of its capital stock.

Article VII.

The private property of the shareholders and members of the corporation shall be exempt from all corporate debts.

Article VIII.

These articles may be amended, repealed, changed or modified at any annual meeting of the stockholders of said corporation, or at any special meeting called for that purpose, upon compliance with the statutes of the State of Iowa, in such cases made and provided.

Article IX.

Subject always to the by-laws made by the stockholders, the Board of Directors may make by-laws, and from time to time may alter,

amend or repeal any by-laws; but any by-laws made by the Board of Directors may be altered or repealed by the stockholders at any annual meeting, or at any special meeting, provided notice of such proposed alteration or repeal be included in the notice of the meeting In witness whereof the incorporators of the said incorporation have hereunto affixed their respective names this 28th day of February, A. D. 1906.

GEO. H. CARR.
JAMES P. HEWETT.
CRAIG T. WRIGHT.
F. CORLIES MORGAN.
ROLLIN NORRIS.

STATE OF IOWA,
County of Polk, ss:

In this 28th day of February, A. D. 1906, before me, Geo. E. Cromley, a Notary Public in and for said county, personally
64 came Geo. H. Carr, James P. Hewett, Craig T. Wright, F. Corlies Morgan and Rollin Norris Personally to me known to be the identical persons named in and who executed the foregoing Articles of Incorporation, and they severally acknowledged the execution of the same to be their voluntary act and deed for the purposes therein expressed.

In witness whereof I Have hereunto set my hand and affixed my official seal at Des Moines, in the State of Iowa, on the day and year above written.

[SEAL.]

GEO. E. CROMLEY,
Notary Public in and for the County of Polk, State of Iowa.

POLK COUNTY, IOWA:

Filed for record Feb. 28, 1906 at 12.5 o'clock P. M., and recorded in book 18 page —.

MRS. FRANK W. DODSON, *Recorder.*

STATE OF IOWA, *ss:*

Filed for record in the office of Secretary of State February 28th A. D. 1906 and recorded in book 1-4, page 95.

W. B. MARTIN,
Secretary of State.
D. A. HITES, *Deputy.*

Proof of publication filed May 12, 1906."

Judge CARR: Complainant offers and reads in evidence Exhibit 2, being a duly certified copy of the record of the ordinance No. 1767 of the city of Des Moines, passed December 27, 1910, and signed on the same day, and duly certified by the City Clerk, it being the ordinance in controversy, as follows:

65 *"Ordinance No.* 1767.

"An Ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for a violation thereof.

Be it ordained by the City Council of Des Moines:

SECTION 1. From and after the first day of January, A. D. 1911, the rate to be charged and collected for gas by any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants, is hereby fixed as follows, to-wit: Ninety (90) cents for each thousand cubic feet.

SEC. 2. If any person, firm or corporation supplying or distributing gas to the City of Des Moines, or its inhabitants, shall reduce the price of gas to its patrons below the price fixed in this ordinance, then any such person, firm or corporation shall not charge any person or persons for gas, a price in excess of *of* that which said person, firm or corporation has charged any other person, firm or corporation has charged any other person. The provision of this section shall not be construed to prohibit special contracts for lower rates to large consumers.

SEC. 3. Any person, firm or corporation using the streets, highways, avenues, alleys or public places of said City in supplying or distributing gas shall pay to the City Treasurer for the use of said City of Des Moines, as a license or occupation fee, for each year that the streets, highways, avenues, alley- and public places of said City are used in supplying or distributing gas, beginning
66 January 1, A. D. 1911, two (2) per cent of the gross receipts for gas sold during such year; the same to be paid semi-annually and within thirty (30) days after the expiration of the preceding six (6) months.

SEC. 4. Any person, firm or corporation supplying or distributing gas to said City of Des Moines or its inhabitants, shall furnish gas of not less than twenty-two (22) candle power.

SEC. 5. Nothing in this ordinance contained shall ever be construed to in any manner recognize any franchise or other rights claimed by any person, firm or corporation to use the streets, highways, alleys, avenues or public places of said City for the purpose of laying or maintaining mains and pipes in supplying or distributing gas to said City or its inhabitants.

SEC. 6. Any person, firm or corporation supplying or distributing gas to said City of Des Moines, or its inhabitants, or any officer, agent, collector or employee of such person, firm or corporation, who shall charge, demand, collect or receive any rate of compensation for gas supplied or distributed to said City of Des Moines, or to any inhabitant thereof, in excess of the rate fixed by this ordinance, or any such person, firm or corporation or officer thereof failing to pay the license fee provided for herein, shall be deemed

guilty of a misdemeanor and upon conviction thereof shall be punished by a fine in a sum not exceeding one hundred dollars ($100.00) or by imprisonment in the City jail for a period not exceeding thirty (30) days.

SEC. 7. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SEC. 8. This ordinance being deemed urgent for the immediate preservation of the public peace, health and safety shall be in full force and effect from and after the first day of January, A. D. 1911, and after its passage and publication as provided by law.

67 Passed December 27, 1910.
Signed December 27, 1910.

JAMES R. HANNA, *Mayor.*

Attest:

NEAL JONES,
City Clerk.

I, Neal Jones, City Clerk of the City of Des Moines, hereby certify that the above and foregoing is a true copy of an ordinance passed by the City Council of said City at a meeting held December 27, 1910, signed by the Mayor December 27, 1910, duly recorded and published as provided by law, February 4, 1911.

NEAL JONES,
City Clerk."

Judge CARR: Complainant offers and reads in evidence from Exhibit 3, being the published proceedings of the City Council of the City of Des Moines, published under date of November 5, 1910, by authority of the city, being the following portion of the proceedings of the Council under date of October 21, 1910, as follows:

"No. 2449.

Be it resolved by the City Council of the City of Des Moines:

Whereas, The contract between the Gas Company and the City of Des Moines, relative to rates expires January 1, 1911; therefore be it resolved by the City Council of the City of Des Moines: That the Superintendent of the Department of Streets and Public Improvements and the Legal Department be requested to recommend to the Council a new schedule of rates and regulations.

Moved by MacVicar to adopt. Motion carried. Yeas: Ash, MacVicar, Roe, Schramm, Hanna (5). Nays: None."

68 Judge CARR: For the purpose of showing the date of the proceedings, we also offer the following which appears on page 955 of said published proceedings, as follows:

"DES MOINES, IOWA, *October* 21, 1910.

No. 2432.

Council met at 9 o'clock a. m. pursuant to adjournment. All members present except Roe. Mayor Hanna presiding."

Judge CARR: Complainant offers in evidence from Exhibit 4, being proceedings of the City Council of the City of Des Moines published February 1st, 1911, by authority of the City, the following from page 1186:

"DES MOINES, IOWA, *December* 27, 1910.

No. 2977.

Council met at 9 o'clock a. m. pursuant to adjournment; Mayor Hanna presiding; all members present."

Judge CARR: And the following from the proceedings of said date, being roll call No. 2994:

"Report of Superintendent of the Department of Streets and Public Improvements, stating that, I beg to report herewith an ordinance fixing gas rates, and call your attention to communication of City Attorney accompanying same, presented, to which was attached the following communication from City Solicitor:

DES MOINES, IOWA, *December* 27, 1910.

Hon. John MacVicar, Superintendent of Department of Streets and Public Improvements.

DEAR SIR: Agreeably with your request, I herewith submit draft of an Ordinance fixing the price which every person, firm or corporation shall be entitled to charge and receive for the supplying or distribution of gas to the City of Des Moines or its in-
69 habitants.

You will note the absence of provision in this ordinance with respect to the pressure at which the gas shall be furnished; also, for a renewal or extension franchise authorizing the use of of the streets, highways, avenues, alleys or public places of the city for the purpose of laying down mains and pipes for the distribution of gas.

These omissions are due to the fact that Ordinance No. 751 approved February 11, 1896, and the rights and priviliges conferred thereby, expire January 1, 1911. In these circumstances it occurred to me what the city most desires is to have an ordinance in effect from and after January 1, 1911, fixing the price of gas, and that the other matters to which reference has been made can await the result of further inquiry and investigation. In fine, an ordinance fixing a reasonable rate for gas is one to which no exception can

be taken, and is the measure of what the Company can recover and the consumer must pay. This power of regulation is authorized by Section 725 of the Code. However, if you shall couple with this same ordinance a provision which requires the gas to be furnished at a certain pressure, you immediately draw into the question the effect of the enforcement of such a provision upon the distributing system, and the reasonableness of the same, and furnish the pretext for litigation on the part of those engaged in manufacturing and distributing gas. Nor in my judgment, is it practicable to attempt to grant in this ordinance the use of the streets and public places for the purpose of laying mains and pipes for distributing gas. Action upon such an ordinance should be deferred until a full investigation can be made touching the legal status of those now occupying the streets and engaged in such business. A number
70 of ordinance- have heretofore been passed granting to certain persons or corporations the use of the streets of the city for laying down mains and pipes for the distribution of gas. Some of these ordinances show upon their face as having expired by lapse of time. It has never been made clear, so far as I am able to discover, which of the ordinances referred to the company now occupying the field is operating under, or claims the right so to do. As investigation along the lines suggested will require considerable time and careful attention both as to the facts and the law.

For these reasons, the regulatory ordinance prescribing the rate should be considered independently of the questions involved in a general investigation of the gas situation in Des Moines.

Now, as to the reasonableness of the rate fixed in the proposed ordinance, to-wit: ninety (90) cents per thousand cubic feet, which is the amount incorporated therein to meet your suggestion, I assume is arrived at after due investigation of the subject as well as taking into account the character of the gas product furnished, the substances from which it is manufactured, local conditions, and the price charged in other cities for a like commodity manufactured and distributed under substantially like conditions. Of course, as you know, a quasi public corporation is not entitled as of right and without reference to the interests of the public, to realize a given per cent upon its capital stock; nor is it within the province of the courts to guarantee a certain fixed return to a public utility. It is the duty of the council to fully and fairly investigate and prescribe a rate that will be compensatory; that is, just to both the owner and the public. The right to regulate is not unlimited. It must not be exercised arbitrarily or in such manner as to be
71 destructive of the property employed in the public service. On the other hand, a rate adopted by proper authority, which affords a reasonable return on the value of the property devoted to the public use does not in any manner offend the Constitution and will not be interfered with by the courts. In Wilcox vs. Consolidated Gas Co., 212 U. S., page 19, it is said in effect, that where the margin between possible confiscation and valid regulation is narrow, the rates will not be set aside.

Experience in Des Moines in common with other cities, teaches that a reduction in the price of gas results in an increased con-

sumption and in increased earnings, and that the cost of furnishing the gas does not increase in proportion to the increased amount of gas furnished. The question of how much an increased consumption under a lower rate will increase earnings can only be answered definitely and correctly by a practical test of the ordinance.

These suggestions are dropped as indicating the trend of modern judicial expression pertaining to the question with which you are now confronted, and which must be submitted to the legislative branch of the city government for solution along these lines.

Respectfully,

R. O. BRENNAN,
City Solicitor."

"Moved by MacVicar that report and communication be received and filed. Motion carried. Yeas: Ash, MacVicar, Roe, Schramm, Hanna (5). Nays: None."

Judge CARR: Complainant offers and reads roll call No. 2995, as follows:

"An Ordinance entitled, 'An ordinance to fix the price of gas supplied or distributed to the City of Des Moines, or its
72 inhabitants, and to prescribe the payment of a license or occupation fee by any person, firm or corporation occupying or using the streets, highways, avenues, alleys or public places of the City in supplying or distributing such gas and prescribing penalties for violation thereof', presented, and received its first reading. Moved by MacVicar that rules be suspended, the second and third readings omitted and ordinance placed upon its final passage. Motion carried. Yeas: Ash, MacVicar, Roe, Schramm, Hanna (5). Nays: None."

Judge CARR: Complainant further offers in evidence and reads roll call No. 2996, as follows:

"No. 2996.—Moved by MacVicar that ordinance do now pass. Motion carried. Yeas: Ash, MacVicar, Roe, Schramm, Hanna (5). Nays: None:"

73 Mr. JANSEN HAINES, being first duly sworn on the part of complainant, examined in chief by Judge George H. Carr, testified as follows:

Q. Please state your name, age and place of residence.

A. My name is Jansen Haines. I am forty years of age, and live in Des Moines, Iowa.

Q. How long have you resided in Des Moines, Iowa?

A. Since the 25th of March, 1903.

Q. What if any connection have you with the complainant, the Des Moines Gas Company?

A. You mean at present?

Q. Well, from the time you came to Des Moines.

A. I was manager of the Des Moines Gas Company from March 25, 1903, until July 10, 1911, and have been president of the Company since July 10, 1911.

Q. As manager of the Company, state to the court in a general way what your duties were.

A. I had as manager of the Company charge of all the affairs of *of* the Company in Des Moines, the employment of all the employés of the Company. I had charge of the receipt and disbursement of all the funds of the Company and directed the operations of the Company.

Q. During the time that you were general manager of the Company did it have a local president; that is, a president that resided in Des Moines?

A. No, sir; not until three days ago when I became president.

Q. Now, since you have been elected president of the Company, what is the fact as to your duties with respect to the Company—I to inquire, has the scope of your duties generally been
74 changed in any way?

A. No, sir; practically not.

Q. Prior to coming to Des Moines as general manager of the Des Moines Gas Company, had you any experience in the gas business?

A. Yes, sir.

Q. Did you have a preliminary course of training, college course, I mean, for the purpose of fitting yourself for this line of work?

A. I did, yes sir.

Q. In what school?

—. In the University of Pennsylvania Mechanical Engineering school.

Q. From that institution, when did you graduate?

A. I graduated in 1893.

Q. Please tell the court in a general way what experience you have had in the gas business prior to the time of coming to Des Moines, Iowa.

A. I was employed on April 4, 1896 as a cadet engineer in the service of the United Gas Improvement Company of Philadelphia, and in that capacity I had charge of various construction work and drafting, estimating, inspecting the gas works and properties of that Company and of other companies not connected with the United Gas Improvement Company. After about four years of that kind of work, which included testing at their various stations of the quality of gas and the efficiency of their apparatus. I was employed at various times as acting or temporary manager or superintendent at some of their plants, while the regular manager was absent, from illness or other causes, and in March 1903, came to Des Moines, as I have above stated, as manager of the Company.

Q. Now, prior to your graduation had you had any experi-
75 ence in connection with the gas business?

A. Not with the gas business. I left school when I was seventeen years old and I was employed in a forge and iron works in Philadelphia for about two years. Then I took what money I had saved and what I could get from my father and went to the University of Pennsylvania and took a five years' course there in three years, and subsequently went to the western part of the country and did surveying and engineering work where I could secure

it. I went back to Philadelphia in 1894, secured employment in an insurance office during the day and did drafting and engineering work at night until I was employed by the United Gas Improvement Company in April, 1896.

Q. How long a period were you engaged in the capacities you have stated, in the gas business, before coming to Des Moines as general manager of the Des Moines Gas Company?

A. From April 4th, 1896, to March 25, 1903—practically seven years.

Q. Mr. Haines, do you know what real estate is owned by the Des Moines Gas Company in the city of Des Moines, used and necessary to be used in its business of manufacturing gas in this city?

A. Yes, sir.

Q. I wish you would describe to the court specifically and by specific description the real estatte owned by the Company.

A. Do you wish me to descri*pt* it with the aid of the map?

Q. If you can first describe it and refer to the map later——

A. I think I would rather have the map. The property of the Des Moines Gas Company consists of Lots numbers 3, 4, 5, 6, 7, 8, 9 and 10 in block "B" Scott & Dean's Addition to Fort Des Moines, now included in and forming a part of the city of Des Moines, Iowa, being the whole of block "B", except Lots 1 and 2. Also the whole of Block "C", situated in Scott & Dean's Addition
75½ to *to* Fort Des Moines. Also Lots 3, 4, 5, 6, and 7 in Block "T" situated in Scott & Dean's Addition. Also Lots 3 and 4 in Block "K" together with one-half of the east and west alley and one-half of the north and south alley abutting on said Lots 3 and 4, being a little more than a quarter of a block, situated in Scott & Dean's Addition. Also all of Lot 9 and 10 in Block "M" being one quarter block, situated in Scott & Dean's Addition.

Q. You spoke, Mr. Haines, in describing the property of alleys in some of those blocks.

A. Yes.

Q. What is the fact with regard to the ownership of those alleys: what proceedings have been taken in regard to it?

A. The alleys referred to were vacated by city ordinance to the Gas Company for use in its business.

Q. Now after the vacation of the alleys was there a conveyance of the title by the city?

A. Not of those alleys; not any further conveyance.

Q. Than the resolution of the council vacating and conveying it to the company?

A. Yes.

Mr. Byers: We do not know what the record will show as to that matter, but will look it up and make our objections later if we deem it necessary.

Q. On this Exhibit #5, Mr. Haines, in what way if at all is the property that you have described indicated?

A. It is indicated as enclosed in red lines—red border.

Q. Now I see on this exhibit near the bottom a double line which is marked "River bank July 2 1904", what do those lines indicate?

A. Those lines indicate the edge of the shore July 1904.

Q. Of what river?

76 A. Of the Des Moines river.

Q. Now on this plat or map on Vine Street and Market Street and Elm Street I notice certain dotted lines with crosses, what do those marks indicate?

A. The lines on Vine Street indicate the double track of the main line of the Chicago, Rock Island Pacific Railway.

Q. And on Market Street?

A. On Market Street it indicates the single track of the Keokuk & Des Moines Railway; and on Elm Street the single track of the Chicago, Burlington & Quincy railroad.

Q. Mr. Haines, have you a plat or map that will show the location of this property with respect to the city at large?

A. Yes, sir.

Q. Will you produce it?

A. Yes. (Witness produces map marked Exhibit 6)

Q. Referring, Mr. Haines, to Exhibit 6, I wish you would state what that is?

A. Exhibit 6 is a map of the city of Des Moines which was published in 1910, by Mr. Hubinger, who had just completed, as I understand, the surveys of the city at that time.

Q. State whether that is a map which is in general use and generally recognized as a correct map of the city of Des Moines?

A. I so understand it.

Q. Now does that map show the location of the public buildings in Des Moines?

A. Yes, sir; it shows some of them.

Q. What puglic buildings does it show?

A. It shows the court house, the railroad stations, the state capitol, public library, post office, the old city hall and new city hall, coliseum, the various churches and theaters, the state

77 fair grounds, college buildings, and also the gas works.

Q. Is there anything on the map that indicates or shows distances from some assumed center?

A. There are circles drawn, with the court house as the center, and the radius of the circle representing half miles.

Q. The first circle is a half mile from the court house as a center?

A. Yes, sir.

Q. And the second is a mile, and so on?

A. Yes, sir, each of those circles indicates a half mile and the others indicate additional half mile radius.

Q. What is there on this map, Exhibit 6, that indicates the location of the gas plant?

A. The property of the Gas Company is indicated in a general way, or with such accuracy as you can indicate it on a map of this size by the black ink and an arrow about six inches long, pointing to the gas works, and at the other end of the arrow are the words "Gas Works Property".

Q. Now, I notice on this map colors, what do those colors indicate?

A. The streets are white, and the blocks are filled with brown or green color.

Q. What does the green coloring represent as contrasted with the brown color?

A. The green color represents public property or unplatted districts, as I understand it.

Judge CARR: With the understanding that we will substitute a properly prepared map, we now offer in evidence Exhibits 5 and 6.

Q. What is the fact Mr. Haines, as to the desirability of the location of this property for the use of the Des Moines Gas Company, and in answering that question I would like to have you state
78 generally its desirability and availability for that purpose.

A. The property is situated on the main line of the Rock Island Railroad; with siding facilities on the north; the Keokuk & Des Moines cuts through the property, giving siding facilities on Market Street; the Chicago, Burlington & Quincy lies to the south of the main plant and part of the property lies south of that railroad, so that it really cuts through the south part of the property, and while it has no siding facilities on the side of the Gas Company's property, it has siding facilities on its own property adjoining, which may be used by the Gas Company, and has been used by the Gas Company for unloading material. So that this property has unusually desirable railroad facilities for unloading cars in bulk or in car lots to its own property.

Q. What is the fact as to the accessibility of the property in that respect for other roads not directly connected with it; that is, other roads entering Des Moines, I mean?

A. The Belt Line Railway transfers cars to the Gas Company's property without extra charge, by some arrangement with the railroads—I do not know specifically what that contract is; but on account of these trackage facilities we have no additional charge to pay for switching cars to our sidings, so that we have an opportunity for competitive service from any point and on all the railroads entering Des Moines, and are not tied up to one railroad. The K. & D. and the Burlington own the block of property lying east of Block C on which part of the Gas Company's plant is located, and which can be used for additional trackage facilities for use at any future time they so desire. The property of the Des Moines Gas Company, generally stating, is on the half mile line from the court house, and two blocks south of East Walnut Street, on the
79 east bank of the Des Moines river, which makes it available for ready distribution of material to any part of the city—accessible for either receiving or delivering material by wagon. The property itself is above flood line so far as is known. Therefore the plant is protected from being overflowed by the Des Moines river. This is rather an important feature because in 1903, on May 30th, we had a very serious flood in Des Moines, and the surrounding property was covered up to six or seven feet of water. But our property stood then and stands now on a little elevation, just sufficient elevation to protect it against serious damage or the possibility of shutting down on account of the flood.

The MASTER: Natural or artificial.

A. It is both; some natural elevation, and it has been augmented by filling in.

Q. Did you have any difficulty from the highest flood that has been known in Des Moines in your experience, and perhaps in the history of Des Moines—was you required to shut down or did it in any way interfere with the operation of the plant?

A. No, sir; it operated on an island; that is, it was surrounded by water during the flood and was practically cut off from communication for twelve or fourteen hours, and we had no district in the city of Des Moines that was not properly supplied with gas at any time during the flood. There were a few cases of individual meters that were shut off from some fault, but not to exceed a dozen; and there was no district which was shut off. The Master asked me whether it was naturally higher. I do not know whether I can answer that from my own knowledge, because some of it had been filled in before I came here. My impression is it was more or less of a natural elevation, and then I know it has been augmented
80 since. The property is advantageously situated in regard to our distribution system, because it is low and it is comparatively near the center of the population and of the building of the city.

Q. You have stated that it is advantageously located, because it is low. I wish you would state to the Master what advantage there is in that.

A. I mean it is low in respect to the northwestern and the eastern part of the city, and the advantage in that is, that the gas being lighter than air, tends to rise, and it therefore requires a less expensive and less extensive system of street mains to supply those outlying districts.

Q. Does that affect the question of pressure?

A. Yes, it affects the question of pressure, because the supply of gas is dependent on the pressure at the point at which it is manufactured, and the higher the elevation on the outlying districts, the easier it is to maintain a sufficient pressure without the extreme expense of larger mains.

Q. Mr. Haines, I wish you would describe in a very general way what improvements and facilities for the manufacture of gas you have erected upon this real estate that you have described.

A. On Block G our general manufacturing plant is situated and is enclosed in brick and steel buildings. On Block D we have our stable and storage yards. On Block K, that is on the quarter block which I have mentioned, we have the storage of the reserve supply of coke and unloading apparatus for unloading pipes and heavy castings. On Block M, or the quarter block which I have mentioned, we have two oil storage tanks of about 300,000 gallons capacity, each of them. On Block T we have our valves for controlling the mains which run under the river, and also the pumps for
81 removing the condensation of water that may accumulate in these mains, and which would tend to shut off the supply of gas.

Q. Now referring to the distribution system, how many miles of mains have you now in use?

A. You mean as of January 1st.

Q. Yes, January 1st, 1911.

A. About 182 miles.

Q. How many services have you or had you?

A. About seventeen thousand services.

Q. Will you p-ease state in a few words to the Master what you mean by services?

A. We distinguish betwe-n mains and services, your Honor, in this way: The mains are the pipes in the street, and the services are the pipes which run at right angles to them and connect the main with the meter in the house. We have about seventeen thousand services or pipes connecting the main with the meters in the house.

Q. How many meters had you in use at that time?

A. My recollections is, about nineteen thousand seven hundred. It is within a comparatively few of that number, but I am not sure of the exact number.

Q. Now, speaking of January 1st of the present year, have you any less meters or any less services, or any less miles of mains in use now than you had on the first of January.

A. No, sir; we have removed some meters, but we have added more than we have removed. We have also added services and we have cut off some services, but added more than we have cut off. We have also laid two or three additional miles of mains since the first of January.

82 Q. You may state, if you know, what was the per capita consumption in Des Moines about January first, 1911.

A. The per capita consumption for the year 1910; that is, the total consumption divided by the population of the census of 1910, is about six thousand per annum. The total amount of gas sold for *for* the year 1910 divided by the census population of the city of Des Moines for 1910 gives, I believe, about six thousand cubic feet of gas.

The MASTER: That is the federal census?

A. Yes, sir, the federal census.

Q. I wish you would state to the court, Mr. Haines, if you will the condition of this property, speaking generally now, and referring to its condition, the repair it is in, referring to the time spoke of as of January first, if there is any difference between the present time and January first.

A. The property I should say is in excellent condition. There have been some little additions since January first, such as were contemplated previous to that and would be naturally made, but nothing of any particular consequence. I have personally visited a number of gas works within the last year, and I believe the property of the Des Moines Gas Company will——

Mr. BYERS: That is hardly competent.

Judge CARR: Well I will not urge the matter at this time.

Q. What is the per diem or daily capacity of your manufacturing plant, Mr. Haines?

A. The capacity of our plant is about five million cubic feet a day; that is, the capacity of all the apparatus for manufacturing gas would be about that. Now we have five units, as we call them for manufacturing of various capacities, but we have to plan the capacity of our plant to take care of the maximum period
83 of consumption, and provides for delay through accident or delay in transit—shipment, and at all times keep a constant supply of gas in the mains of the city.

Q. What is the fact, Mr. Haines, as to whether your manufacturing plant and distribution system is adequate for the needs of the people of Des Moines at the present time?

A. I should say there was no question about its being adequate to supply the needs of the city at present, and there is no indication that it is not so.

Q. What can you say as to whether the property which you have in use in the gas business at the present time—I am speaking now of January first—was excessive or more than is required for the reasonable use of the people of Des Moines?

A. The maximum capacity of our plant is about five million, and our maximum demand last winter was two million two hundred and twenty-eight thousand, a little over two and a quarter million. That maximum demand is the demand in t-enty-four hours—the maximum demand in twenty-four hours. Now in order to provide for that demand without any danger of interruption, we are required to have practically double the manufacturing capacity, or twice as much manufacturing capacity as the demand, so that in the event of accident, which might disable one of our machines, there would be no interruption from the delay necessary to repair it.

Q. You are acquainted with one of the defendants in this case, Mr. John MacVicar?

A. Yes, sir.

Q. What official position did he hold as a member of the council in October, November or December last year?

A. Superintendent of the Department of Streets and Public Improvements.

Q. Did you have a request from Mr. MacVicar communi-
84 cated to you, in October with respect to what proposition the Company would make with respect to the price at which it would furnish gas after the first of January?

A. Yes, sir.

Mr. BYERS: I will suggest that if you go into that matter, we will insist on following it up to the final breaking off of negotiations.

Judge CARR: Well, Brother Byers, you will have to be governed by your own ideas as to what is proper. If that is intended as a warning or threat, I have it.

Mr. BYERS: It is merely a suggestion, Judge. I object to that line of testimony as being wholly immaterial and incompetent.

Judge CARR: I am not intending now to go into any communications or conversations between Mr. MacVicar and Mr. Haines. I only want to refer to the circumstances as preliminary to what I next intend to do.

Q. Now after receiving that request from Mr. MacVicar, did you answer it by written communication?
A. I believe, yes, sir.
Q. And on what day?
A. On November 22nd, 1910.

Judge CARR: Mr. Byers or Mr. Brennan, have you the original letters written to Mr. MacVicar.
Mr. BYERS: I don't know that we have; I thought we turned them over to you; but we make no question as to a copy.

Q. Have you a correct copy of that letter, Mr. Haines?
A. I have, yes sir.
Q. Will you produce it?
(Witness produces copy.)

85 The MASTER: Do you desire to interpose the same objection you suggested a while ago?
Mr. BYERS: The record may show an objection to each of these communications, without repeating it as you go along.

Q. Is Exhibit 7, now shown you a correct copy of the letter delivered to Mr. MacVicar on the date of November 22nd to which you referred?
A. Yes, sir; it is a correct copy of the letter I delivered myself to Mr. MacVicar.

Judge CARR: The complainant now offers and reads in evidence Exhibit No. 7.
Mr. BYERS: We interpose the same objection as last above.

Q. Did you receive a response to your letter of November 22nd?
A. Yes, sir.
Q. Will you please produce it?

Mr. BYERS: We object to having the record made up for counsel in this manner. It is very expensive.
The MASTER: Let me suggest that in taking the opening statements yesterday these letters were copied into the record and it is not necessary to repeat them now.

Q. Is the letter Exhibit No. 8, now shown you, the letter from Mr. *Mr.* MacVicar to you under date of November 25th, to which you have referred?
A. Yes, sir.

Judge CARR: Complainant now offers and reads in evidence Exhibit 8, being the letter from Mr. MacVicar to Mr. Haines under date of November 25.
Mr. BYERS: We make the same objection as was made to Exhibit 7.

Q. Did you reply to the letter of Mr. MacVicar of date
86 November 25th, Mr. Haines?
A. I did, yes sir.
Q. Have you a copy of your answer to his letter?
A. I have, yes sir.

Q. Will you please produce it? (Witness produces letter.)
A. Yes.
Q. Is Exhibit 9, now shown you, a correct copy of your letter to Mr. MacVicar under date of November 26th?
A. It is, yes sir.

Judge CARR: Complainant now offers and reads in evidence Exhibit 9, being letter from Mr. Haines to Mr. MacVicar under date of November 26th.
Mr. BYERS: We interpose the same objection as heretofore made.
Judge CARR: You are not including in that objection that it is not the best evidence.
Mr. BYERS: The objection formerly made was that it was immaterial and incompetent. We waive the identification of the letters and make no objection to the fact that copies are used instead of the originals.

Q. Did you receive from Mr. MacVicar a further communication subsequent to November 26, or in reply to your letter of November 26th?
A. I did, yes sir.
Q. Will you please produce it?
A. I will.
Q. Is Exhibit No. 10 the letter to which you refer?
A. It is, yes sir.

Judge CARR: The complainant now offers and reads in evidence Exhibit No. 10, being a letter to Mr. Haines from Mr. MacVicar under date of November 29th, 1910.
Mr. BYERS: We make the same objection and the same
87 waiver as to the former exhibit.
Q. Did you reply or address a further communication to Mr. MacVicar following his communication to you of November 29.
A. I did, yes sir.
Q. Have you a correct copy of your letter to Mr. MacVicar?
A. Yes, sir.
Q. Will you please produce it?
A. Yes, sir.
Q. Is Exhibit No. 11 the copy of the letter to which you refer?
A. Yes, sir.
Q. And is this a correct copy of the letter addressed by you or sent by you to Mr. MacVicare under date of December 2nd?
A. Yes, sir.

Judge CARR: The complainant now offers and reads in evidence Exhibit No. 11, being a copy of letter addressed to Hon. John MacVicar under date of December 2, and signed by Mr. Haines.
Mr. BYERS: We interpose the same objection and waiver as to the former exhibits.

Q. Did you receive a further communication from Mr. MacVicar?
A. I did; yes sir; under date of December 2nd.
Q. Will you please produce the communication?

A. Yes. (Witness produces same.)
Q. Is Exhibit 12 now shown you the letter to which you refer?
A. Yes, sir.

Judge CARR: Complainant now offers and reads in evidence Exhibit No. 12, being a letter to Mr. Haines from Mr. MacVicar under date of December 2nd, 1910.

Mr. BYERS: Defendants make the same objection and waiver.

The MASTER: It is understood that objection shall apply to all this evidence.

88 Q. Did you receive a further communication from Mr. MacVicar?
A. Yes, sir.
Q. Of what date?
A. December 3.
Q. Is Exhibit 13 the letter or communication to which you refer?
A. It is, yes sir.

Judge CARR: Complainant now offers and reads in evidence Exhibit 13, being a letter to Mr. Haines signed by Mr. MacVicar under date of December 3, 1910.

Q. Now I will ask you if the letters and copies of letters which you have here produced and which have been marked from Exhibit 7 to 13 inclusive, are the same letters and copies of letters that were read in the opening statement yesterday and by the Reporter incorporated into the record?
A. Yes, sir.
Q. Now subsequent to the passage of the ordinance, on the 27th day of December, 1910, did you address a communication to Mr. MacVicar, or to the council of the city of Des Moines?
A. Yes, sir.
Q. Will you produce that communication?
A. Yes.
Q. Is Exhibit 14 a copy of the communication to which you refer?
A. Yes, sir.
Q. And is Exhibit 14 a correct copy of a letter written by you to the mayor and city council of the city of Des Moines under date of December 28th?
A. Yes, sir.

Judge CARR: The complainant now offers and reads in evidence Exhibit No. 14.

Mr. BYERS: I understand this is after the passage of the or-
89 dinance. It is objected to in addition to the former exhibits because it is a communication made to the council subsequent and is immaterial and irrelevant to any issue herein.

Judge CARR: This letter was not read in the opening statement and I will read it. It is as follows:

"To the Honorable Mayor and the City Council of the City of Des Moines, Iowa.

GENTLEMEN: I am advised by the press of the passage by your Honorable Body of an ordinance to reduce the price of gas. I respectfully submit that you have acted with less consideration than should have been given to a subject which so vitally concerns one of the largest industrial concerns in your city.

The Des Moines Gas Company is an institution whose welfare is inseparably connected with that of the City. Its management has at all times recognized this fact and has endeavored to accord fair and courteous treatment to the people of Des Moines and to you as their representatives.

On November 23d I wrote to your Superintendent of Streets and Public Improvements, inviting the fullest investigation of the facts, which should be known before recommending to you a rate that would be just to both the Company and the public. Every facility was tendered to make such investigation thorough and complete. The request, that this investigation be made, was again urged in my letter of November 26th and again in my letter of December 2d.

On November 29th, Mr. MacVicar wrote me as follows: 'It is probable the City will desire to accept your offer and make some examination of your books,' and on December 2d, he detailed Mr. Maxwell, one of the City's Engineers, to cooperate with our engineers in the work of ascertaining the value of the property of the Gas Company.

Although the work of ascertaining this valuation was begun on November 22d, and has been carried on by a large force of experienced engineers and their assistants in order to insure all reasonable dispatch, owing to the vast amount of detail, it is not yet completed.

As yet the opportunity offered to you to verify the statement of the earnings of this Company, submitted in my letter of November 22d, addressed to Mr. MacVicar, has not been acted upon.

As far as I am advised no report was submitted to the Council by Mr. MacVicar, of any facts upon which a reasonable rate must be based, nor was I accorded the privilege of appearing before the Council to submit for your consideration any facts which bear upon the question of what is a reasonable rate.

I note that your City Solicitor in his report to you on this subject as published said 'It is the duty of the Council to fully and fairly investigate and prescribe a rate that will be compensatory that is just to both the owner and the public.' I am at a loss to understand how you are able to 'fully and fairly investigate' so as to prescribe a rate that is just to the Company and the public without having completed the physical valuation of the property, or verified the statement of earnings submitted. Am I not justified, therefore, in assuming that you have given the subject less consideration than was necessary in order to enable you to do justice to the Company, as well as to the public?

I am not unmindful of the fact that the ordinance of February

7, 1896, which lowered the price of gas from $1.70 per thou-
91 sand cubic feet, by a series of reductions at successive periods, to $1.00 expires on January 1, 1911.

Information and the offer, such as submitted in my letter to Mr. MacVicar of November 22d, would have been cheerfully given at an earlier date, had the Council raised any question as to the reasonableness of the present rate or in any way indicated their purpose to insist that the present rate was too high.

I again appeal to you to complete the investigation as to the value of the property and to verify the statement of earnings submitted, before taking such final action as appears to suggest no recourse but a resort to the courts.

A continuation of the present rate until the investigation as to its fairness has been entered upon by you, has been completed, can result in no hardship to the public and is surely preferable to long and expensive litigation.

Very respectfully yours,

(Signed) JANSEN HAINES, *Manager.*"

Mr. BYERS: We object to having that paper copied into the record. It so clearly appears to be entirely irrelevant to any issue in this case, the statements in it being self-serving, and no court anywhere in this country would admit testimony of this kind. It simply pads this record and makes an unnecessary expense.

Judge CARR: If it is desirable at this time to discuss the materiality of these letters, I will do so. This testimony is not offered for the purpose of padding the record. We are offering it because we believe in good faith it is a material item of evidence.

Q. Now, Mr. Haines, some time prior to December 27th,
92 1910, did you set about to the making of an inventory of the property of the Gas Company for the purpose of ascertaining just what the property was and for the purpose of ascertaining its value?

A. I had such an inventory in preparation. I was out of the city on October 24th when the resolution directing Mr. MacVicar and the legal department to recommend to the Council a rate for gas in Des Moines was passed, and I was notified of its passage by letter. I then immediately arranged for a complete inventory of the property of the Des Moines Gas Company to be made, as stated in my letter of November 22 to Mr. MacVicar. On November 3rd, 1910, the engineers, some of them who were to make this inventory arrived, and continued through January in Des Moines making their field notes and drawings in a large room which I provided for them near the gas works. When they had completed their field notes and the sketches which required their presence in Des Moines they took this data and notes and completed some of their sketches in Philadelphia, I believe. I was not present when they did it in Philadelphia.

Q. Who had charge of the making of this inventory of the manufacturing plant?

A. Mr. Broadnax.

Q. What if any assistance did he have during the work?

A. He had five assistants, three of whom arrived on the 2nd of November, 1910; two of them on the 3rd of November, 1910, and Mr. Brodnaux arrived on the 4th of November, 1910.

Q. Who is Mr. Brodnax, what is his business?

A. He is an engineer of several years' experience; I don't know how many.

Q. Who had charge of the inventory as to the distribution system?

A. Mr. Walter.

Q. Was he also an engineer of experience?

93 A. Yes, sir. He arrived on November 16th, 1910; he had charge of the inventory of the distribution system—the mains, services and meters. He had eleven assistants.

Q. What is the fact as to whether the work of making this inventory of the property from the time it was begun it was continued and pushed to completion as rapidly as possible?

A. The work was prosecuted as rapidly as it could be. The men took many of their measurements in the day time and made some of their drawings at night; they worked over hours as much as men could work on account of their eye-sight. That is true of the force that took the inventory of the distributing system, but the vastness of the work and the amount of detail required a long time to do it with the accuracy with which it was done.

Q. Did the city engineer or some engineer from the engineer's office work with your engineers in making this inventory?

A. The city engineer delivered a letter to me from Mr. MacVicar on December 2nd which has already been placed in evidence and which instructed him to co-operate with our engineers in taking this inventory. I immediately took him over to the rooms where these engineers were at work and introduced him to them and told them that he was to be offered and given every facility for checking their work to satisfy himself of the correctness of the measurements, and that they were to remeasure any measurements which he raised any doubt about, and in every way satisfy him that our work was being accurately and conscientiously done.

Q. What was the name of the engineer?

A. His name was Maxwell.

Q. Do you know whether he continued from that time on to work with your engineers while the inventory was taken in Des Moines?

A. He worked with them; I saw him with them frequently

94 over at the plant where the engineers were making the inventory of the manufacturing plant, and he came to the office and worked with the engineers at my office on Seventh Street when they were making the inventory of the distribution system, and of the records of the distribution system.

Q. Was a detailed inventory of the property prepared by these engineers?

A. It was, yes sir.

Q. Have you that inventory?
A. I have.
Q. Will you produce it?
(Witness produces inventory.)
Q. In how many volumes is this inventory and the accompanying sketches bound?
A. It is in two volumes, and in addition to these two volumes there are some maps.
Q. Please examine Exhibit 15 and state if that is the first volume of the inventory to which you have referred?
A. It is, yes sir.
Q. Please examine Exhibit 16 and state if that is volume two of inventory to which you have referred?
A. It is, yes sir.
Q. Mr. Haines, did you furnish the city or Mr. Brennan as legal representative of the city with a copy of this inventory?
A. I did, yes sir.
Q. At whose request?
A. At the request of Mr. Brennan.
Q. And when was that?
A. On March 8, 1911.

Q. Was the copy you furnished him a complete copy, I
95 mean of the first and second volume, as you have produced it here?

A. Yes, sir; it is.
Q. And that was given to him on March 8th?
A. On March 8th, at his request for the use of the city engineer.

Judge CARR: I would like to inquire of you gentlemen whether we can agree upon this inventory being correct or not. Of course if we must go on and prove in detail the accuracy of the inventory it will cover considerable time. Inasmuch as we furnished you an inventory so long ago we had hoped you would be in a position to point out wherein you claim it is not accurate and thus avoid the time it will take to prove it.

Mr. BYERS: We are not ready to do that at this time.

Judge CARR: Your Honor can readily see that one of the first things we shall do in this case is to prove what property we have, and I hope that counsel will be able to give us an answer on this subject in the near future. We can not go forward with our case very far until we have shown what property we have.

Mr. BYERS: The only thing we can do is to check out what we find there. It is no inventory, it is just a list of the items, and we will check them as rapidly as we can.

Judge CARR: If you mean that you will not be able at any time to admit the accuracy of this inventory, we might as well prove it.

Mr. BYERS: Some things I know myself.

Judge CARR: We will pass this for the present and will not offer these exhibits at this time, because I do not — we have sufficiently
laid the foundation for it. And until the city attorneys can
96 determine whether they can accept it or not.

Q. Mr. Haines, did the city or Mr. MacVicar or any representative of the city at any time avail themselves of this offer of your invitation to them to come and inspect your records for the purpose of verifying the statements you made in this connection as to the receipts and expenditures of your company?

A. No sir.

Q. Has that been done at any time down to the present time?

Objected to on part of the defendants as being incompetent and immaterial.

A. No, sir.

Q. Now, Mr. Haines, was you notified of the filing or making of the report by Mr. MacVicar which was submitted and which has been offered in evidence, and which was submitted on the 27th day of November?

Objected to on part of defendant as immaterial and incompetent.

A. I was not.

Q. Was you invited by anyone representing the city to appear before the council at the time this report was received or at any time prior to the passage of this ordinance of December 27th.

Defendants interpose the same objection as last above made.

A. I was not

Q. Was you or any representative of the Des Moines Gas Company at any time prior to the passage of this ordinance invited or given an opportunity to appear before the council for the purpose of presenting such reasons as they might have to present or such showing as they might be prepared to make with respect to
97 what would be a reasonable rate for gas in the city of Des Moines?

Defendants interpose the same objection as last above made.

A. I was not.

The MASTER: As I understand the position of you gentlemen for the city, you claim that all this evidence preliminary to the passage of this ordinance is immaterial.

Mr. BYERS: Absolutely, yes sir.

The MASTER: And Judge Carr, I understand you claim it is proper to be considered for the purpose of weakening the presumption in favor of the ordinance and the rate fixed.

Judge CARR: That is the only object of offering this testimony. I might say we have authorities upon that subject.

The MASTER: I do not care to hear you any further now; I simply wanted to know your positions.

Q. When did you first learn of the passage of this ordinance of December 22nd?

A. A reporter of one of the newspapers called me up, I think just about noon, half past eleven or twelve o'clock, and asked me if I heard anything. I told him no. Then he told me of it.

Q. Was that the day of the passage of the ordinance?

A. That was on the day of the passage of the ordinance.
Q. It was passed in the forenoon then?
A. Yes.

At this time, 12 M. an adjournment was taken until 1:30 o'clock P. M.

98 TWO O'CLOCK P. M., THURSDAY, *July* 13, 1911.

JANSEN HAINES being cross examined by Hon. H. W. Byers, testified as follows:

Q. You came to Des Moines in 1903?
A. Yes, sir.
Q. Did you take immediate charge at that time of the property of the Des Moines Gas Company?
A. Yes, sir.
Q. Who was your predecessor?
A. Col. E. G. Pratt.
Q. Do you have under your control now and in your possession the *the* inventory that was furnished to you at that time?

Objected to as not proper cross examination.
COURT: I will not pass on the objections now.
Judge CARR: I make the further objection that it assumes a fact not established, namely, that an inventory was furnished him.

A. I had no inventory furnished to me at that time.
Q. What property was turned over to you at that time?
A. The property of the Capital City Gas Light Company.
Q. And what did that consist of at that time?
A. Certain real estate, buildings and——
Q. The same real estate that is included in the inventory that was marked Exhibits 15 and 16?
A. Part of that real estate but not all.
Q. What part of it was not turned over to you at that time?

Objected to as not proper cross examination.
COURT: I think it bears on his knowledge, you may go ahead.

A. That part which is situated in Block K and in Block M.
99 Q. The lots then or the tract of ground covered by this inventory that are in Block K and Block M have been purchased since you became manager of the company?
A. Yes, sir.
Q. And when was it purchased?
A. I can't give you the exact date.
Q. Well about the time?
A. About four years ago I think, four or five years ago.
Q. How much ground is included in those two tracts.
A. Well in Block K there were two lots and in Block M two lots and in Block K there was the half of the alleys which were not vacated at that time.
Q. Well you claim that the alleys were vacated since that time and the ground conveyed to the gas company?

A. The alleys were vacated about three or four years ago.
Q. How did that come to be done, do you remember, who carried on the negotiations, if any one?
A. About the alleys?
Q. Yes?
A. There was a petition presented to the council requesting their vacation.
Q. Petition on the part of the Gas Company?
A. We joined in the petition, yes, with the other property owners.
Q. And was that all there was to it, just a petition to vacate the alleys?
A. No the council proceedings will show that.
Q. Well your part of it, what else did you have to do with it, the Gas Company?
A. That is all I had to do with it.

Q. That is all you had to do with it and that is all so far
100 as you know that was done was simply the alleys were vacated, your part of the alley?

A. Yes, that is what I stated before.
Q. You immediately took possession did you of the alleys, that part that was vacated?
A. Well we use it, yes.
Q. And you are using it now?
A. Yes, part of it, not all of it.
Q. As part of this gas plant?
A. Yes, sir.
Q. And part of both of the alleys that were vacated?
A. No, we are only using part of one alley at the present time?
Q. You claim the other and have included it in your invoice?
A. Yes.
Q. How much of a strip of ground is that?
A. Eight feet wide I think.
Q. And how long?
A. 140 feet—132 feet about that, within a few inches.
Q. You say it is only eight feet wide and 132 feet long?
A. Yes, sir. The alleys are sixteen feet wide and this is half of the alley.
Q. How much of a strip is the other one on the other street?
A. The same size.
Q. The vacation then did not extend clear through the block?
A. No.
Q. Just that part of the alley that abutted on these lots you owned in blocks M and K?
A. No, there was no vacation in Block M. It only referred to the vacation in Block K, Block M stands, the lots 9 and 10.

Q. I know, but there was part of that alley vacated you
101 said a moment ago?

A. No, sir; not in Block M.
Q. What other block was it?
A. Block K.

Q. All in Block K was it?

A. It was just simply the alleys adjoining three and four on the — and on the east.

Q. Then I was correct in asking you if it was not just that part of the two alleys that abutted on the lots that belonged to your company?

A. In Block K.

Q. Yes. Four lots in Block K?

A. Two lots in Block K.

Q. Three and four and nine and ten?

A. No, nine and ten in Block M. Three and four are in Block K.

Q. You have shown have you on this map here the vacation of the alley extending the full half block north and south and half block east and west?

A. In what block?

Q. In Block K.

A. Yes, sir.

Q. So the vacation was across the half block north and south and *and* east and west of Block K?

A. Well the vacation I refer to is simply the half of the alley abutting on the northwest quarter block in block K. It abuts on the south side of lot 3 and on the east side of lots 3 and 4.

Q. That would be then the vacation extended half way across the block both ways, that is your claim is it?

This red line on the south side of lot 3 in Block K and on
102 the east of lots 3 and 4 Block K is where you claim the alley is vacated and you claim now that it belongs to the Gas Company?

A. It was vacated for the use of the Gas Company.

Q. Did the company pay anything for it?

A. No, sir.

Q. That part of the plant the company has no investment in the ground, that is true isn't it?

A. They paid no money for the ground.

Q. Is all the real estate owned by the company located on the east side of the river and south of Walnut street?

A. All of the real estate in Des Moines, yes.

Q. I meant in Des Moines. Does this local company have real estate anywhere else?

Objected to as not proper cross examination and immaterial.

A. Yes, sir.

Q. Did it acquire that real estate since you became manager of the company?

A. Yes, sir.

Q. And did you carry on the negotiations for it?

A. Yes, sir.

Q. How much real estate does the company own?

Judge CARR: I would like it understood that this is all objected to as incompetent, immaterial and not proper cross examination.

Mr. BYERS: It might become very material.

COURT: Where did you say this real estate was?

A. It is t-oo small lots in Valley Junction which is a small town adjoining Des Moines, town of about 2,500 inhabitants, immediately west of Des Moines.

Q. When did you acquire these lots Mr. Haines?

A. It was about 1905 I think. I don't know the exact
103 date, but it was about that.

Q. Well will you say that it was prior to the reorganization of the company in 1906?

A. Yes, it was.

Q. No doubt about that. Now is that all the real estate that this local company owns or has any interest in?

A. Yes, sir.

Q. The real estate on the east side of the river and the two lots *lots* at Valley Junction?

A. Yes, sir.

Q. Now on this property east of the Des Moines river and south of what buildings were there when you took charge of the property, I will make that south of Court Avenue, of course south of Walnut street would cover it, but say south of Court Avenue.

A. The present purifying house, part of the building immediately north of it.

Q. The first item you mention the purifying house, what is the character of that building?

A. It is a brick building with slate roof.

Q. Solid brick walls or veneered brick?

A. Solid brick walls.

Q. And when was it erected?

A. I dont know.

Q. You say you don't know?

A. That is what I said, yes.

Q. Have you ever examined the books or records of the company to ascertain?

A. I might have.

Q. Well, I am asking you if you have?

104 A. I don't recollect whether I have or not, but probably I have.

Q. If you think you did make such examination when did you make it with respect to say January of this year?

A. I am sure I have no recollection at all.

Q. If you did so at all, it was long prior to January of this year was it?

A. Might have been, I don't know that.

Q. Are you sure that you have not since, are you?

A. I am not sure I have not since. I did look up the date of the erection of some of these buildings, but I can't give offhand the dates on which they were built from my recollection now.

Q. You have books and memorandum in your office here in

Des Moines that does show just when that building was built have you not?

A. I probably have, I don't know. I never paid any particular attention to it in that respect. I think the inventory shows *shoes* these dates where they are accessible in every case. I have not burdened my mind with that, that is all.

Q. The inventory does not show anything with respect to this property that would be involved in book entries that were not taken from your books does it?

A. I really don't know how the engineers got the date of that building. Some of the buildings have the dates marked on them. Some of them I presume were acquired from the general knowledge around the plant as to when they were built. They were built prior to my taking charge of the plant. When I found they were in good condition I did not take any further—make any further examination of when they were built.

Q. When you came here in 1903 Mr. Haines, to take over this property, you examined it thoroughly did you not?

A. Yes, with reasonable care.

105 Q. And checked up every item of property did you not?

A. I made an examination of it yes.

Q. Well answer the other question.

A. What do you mean by checking it up?

Q. I mean this when you came here to take over this property you *you* were furnished with a detailed statement of just what the company had here and with that statement you went over this property and checked it up to see if the property was here did *did* you not?

A. I don't recollect being ever furnished with any detailed statement at all. I was familiar with the property when I came here.

Q. What did you do in the way of ascertaining what property was when you took over the management of the concern?

A. I went over it and inspected it with Col. Pratt.

Q. Colonel Pratt was going out wasn't he?

A. Yes, sir.

Q. He had had the same complete charge over this property that you were taking on hadn't he?

A. As far as I know yes.

Q. He managed the local affairs, disbursed all the funds, employed all the help, made the reports to the parent company or home company did he not?

A. As far as I know. Of course I had nothing to do with Col. Pratt's employment.

Q. Didn't you check up with him when you came here to take over the property?

A. I went over the property with him, he showed me what the property was, where it was and introduced me to the men who were in charge of the different departments under me.

Q. What else did you do in the way of ascertaining what was here?

106 A. I went over the city with him and he showed me in a general — where the mains supply of the city was located.

Q. That all?
A. Practically all yes.
Q. At that time was there any statement made or furnished to you about this property, the particular items that belonged to it or anything of that kind?
A. No, sir.
Q. Nothing of any kind?
A. No.
Q. You say you have never seen any such sta*me*nent?
A. No, sir.
Q. And there is no such entries in the books?
A. You mean prior to January first?
Q. At the time you took over this property what entries if any made in the books with respect to the property that came into your hands?
A. Well the books were there and were simply continued as they were.
Q. That is not quite an answer, Mr. Haines.
A. Just the usual entries that are made from day to day.
Q. Any charges made to you or any credits to Col. Pratt, anything of that kind?
A. Certainly not, no sir.
Q. Did the company at that time have anybody else here in charge of their business who was responsible in any way for the business other than Col. Pratt?
A. No, I think not.

Q. At that time, 1903, who were the responsible officers of
107 the Gas Company?

A. Col. Pratt was the manager and Mr. Keffer was I think secretary, W. B. Keffer.
Q. Who were the directors?
A. I don't recall who the directors were at that time. The books will show who they were.
Q. Who are they now?

Objected to as not proper cross examination.

A. The books will show. I don't recall who the directors are now. I know some of them.
Q. Do you mean to say now you don't know who the directors of the company are that you are now president of?
A. I don't see why I should not say that.
Q. Do you say that?
A. I don't recollect them without refreshing my memory. I don't elect them.
Q. They elect you don't they?
A. Yes, sir.
Q. Where are the directors located?

Objected to as immaterial and not cross examination, my *my* thought is that this cross examination ought to be kept reasonably within the scope of the direct examination.

Mr. BYERS: We are entitled to this information, every bit of it.
COURT: The question is who are the directors if you know?

Mr. BYERS: This question is where are they located?

A. Some of them I think, I think all of them are in Philadelphia, at least their residence is Philadelphia.

Q. Who owns the Des Moines Gas Company, perhaps that is a shorter way to get at it?

Objected to as not proper cross examination.

108 A. The United Gas Improvement Company in Philadelphia.

Q. Did that corporation own the company that you took over the management of in 1903?

A. Yes, I believe so.

Q. And that is a corporation organized in the state of Pennsylvania is it?

A. I have never seen its articles, I suppose it is. It is located in Pennsylvania.

—. Are there any resident stockholders in this so called Des Moines Gas Company?

A. No, sir; not to my knowledge.

Q. Are you a stockholder? ?

A. No, sir.

Q. Is Mr. Keffer?

A. No, sir.

Q. Is there anybody in Des Moines that holds any of this stock that you know of?

A. Of the Des Moines Gas Company?

Q. Yes.

A. Not that I know of.

Q. Or the United Gas Improvement Company?

A. I suppose there are some, the stock is widely scattered throughout the United States.

Q. Does the Des Moines Gas Company have any stock at all?

A. So far as I know it does.

Q. Who told you if you know?

Objected to as immaterial and not proper cross examination.

A. I can't say that I know of my own knowledge.

Q. Give us the name of anybody that you say owns any, any person or corporation, any of the stock of this local concern?

109 Same objection.

A. I have never seen the stock certificate book and I can't answer that of my own knowledge.

Q. Is that the only way you have of knowing who has stock?

A. Of my own knowledge. I have never seen any of the certificates of stock in the hands of local people here.

Q. You are now president aren't you?

A. Yes, but I am not interested in the stock.

Q. When were you elected president?

A. On Monday the 10th.

Q. Of this present month?

A. Of this month.

Q. The days before the commencement of this hearing.
A. Yes, sir.
Q. Where were you elected, where was the meeting held?
A. I was simply notified that I had been elected.
Q. Notified from where and by whom?
A. From the office of the United Gas Improvement Company in Philadelphia.
Q. By some officer or its secretary?
A. Yes, sir.
Q. Who are the officers of the United Gas & Improvement Company?

Objected to as immaterial and not cross examination.

A. I can furnish you with their published report if you would like to have it showing the officers in detail.
Q. If you know, just tell me.
A. I know some of them. Mr. Thomas Dolan is the president, of Philadelphia. Mr. Randall Morgan is second vice president; Mr. S. T. Bodine is first vice president, Mr. Louis Lillie is secretary and treasurer, no he is treasurer and Mr. W. F. —— ——, is
110 *secretary and treasurer, no he is treasurer and Mr. W. F.* Dothert is secretary. Mr. Walter Clark is third vice president and genera- superintendent. Mr. Lillie is treasurer and fourth vice president I think.
Q. All of these gentlemen you have just named, do they reside in Philadelphia?
A. Yes, their principal place of residence is there I believe.
Q. Do you have in your possession and under your control as part of the records and papers of the office here in Des Moines a copy of the articles of the United Gas and Improvement Company.
A. I have not no sir.
Q. Have you ever seen them?
A. No, sir. I say no, I may have seen them in some printed form, I don't recollect them.
Q. Do you make a daily report to your home company?
A. No, sir.
Q. How often do you report?
A. I report various matters when they come up and make some reports monthly and some at other periods.
Q. What reports do you make monthly?

Objected to as immaterial and not proper cross examination.
COURT: I don't see how that is cross examination.
Mr. BYERS: It seems to me it is in view of his examination in chief as to what he does here. He is in sole charge of this property, disburses all the funds, makes all the contracts and has complete charge of it gave a description of the property and all about it.

A. Reports of the moneys received and disbursed during the month and the materials on hand, received, and used, such reports as that, some in detail, some more in detail and some less.
111 Q. You make daily reports of receipts and expenditures do you not?

A. Not outside of Des Moines. These reports are made to me.

Q. Who makes them to you?

A. The various men in the emplly of the company who have charge of receiving or disbursing materials or moneys.

Q. And from these daily reports you make up your monthly report, is that right.

A. That is not exactly correct, no. The monthly reports are made up from the same data as is furnished to me daily, that is fro- the same source.

Q. What you mean by that is that the daily reports are entered on the books and then the monthly report made from the books.

A. That is not correct. The reports that are made to me -re made from the entries that are made on the books and at the end of the month certain of these entires are compiled into monthly reports, some weekly reports, some bi-weekly reports, depending on what information is desired.

Q. These monthly reports, are they made in duolicate?

A. How do you mean in duplicate?

Q. One copy kept here and one sent to the head office?

A. Oh they are taken right off of our books here.

Q. Do you make them up in duplicate and keep one copy here and send one away?

A. No, sir. Some of them we do and some not.

Q. Which ones do you do that?

A. Well our vouchers are made up in duplicate for the sake of convenience. Our stock sheets of material on hand are made up in duplicate for the sake of convenience because the compila-
112 tions of the report are more easily used for subsequent figuring than getting it from the books. Our other entries such as journal entries and ledger entries are simply copied from the books and no changes made in them.

Q. These reports for instance after they are completed, fully made up and completed are sent to the home company at Philadelphia?

A. Yes, sir.

Q. And no copy or duplicate kept in your office?

A. As I stated in some cases there is and others there is not.

Q. The reports you say are duplicates of some items made up on the report but the report itself, are there any duplicate copies kept in your office?

A. Well there are. Of course to undertake to get at — this way is rather compliacted. The idea is to keep a complete report of our operations at Philadelphia. Now if there is any necessity for duplicating these reports here, we keep a copy otherwise they are simply kept on the books.

Q. I am not asking you about any cases of necessity, but I am asking about the general practice there in that local office. I simply want to know whether the reports that are made monthly to the home company copies of those reports are kept on file here.

A. I think I can say that we have an exact reproduction of all of those reports here either on the books or as copies of the reports as sent in.

Q. Then it is the practice of the office to make those reports in duplicate is it not?

A. Well not all of them except in that way.

Q. Well substantially all of your monthly reports I am talking about?

113 A. Well as I stated some of the reports are simply copied off the books, the reports sent in and the book remains here as the duplicate and in other cases where the reports are compiled from different books we keep a copy of the report there and *and* send the report in.

Q. Is there ever any report sent in that is not compiled from different books, a regular monthly report?

A. Yes, of course there is. The report of the journal entries are copied right off of the journals.

Q. You take this report of journal entries do you and let it go at that?

A. No, that is part of the other report.

Q. The rest of it you take from some other book?

A. A part of the other reports are made up in the same way.

Q. Let me get just what I want and see if we cannot get together on it. What time in the month do you make your report?

A. Well some of our reports are made on the first of the month and *and* the third, they are strung out until about the 15th.

Q. What is in the reports that are made out the first of the month?

A. The first of the month shows the send out for the month previous.

Q. What do you mean by send-out?

A. I mean the amount of gas which was sent out in the month previous, that is accessible on the first of the month at seven o'clock and we try to get that report off on the first or second.

Q. What else is in that report?

A. The materials used in the manufacture of gas.

Q. And what else?

A. Weather report.

Q. Anything else?

114 A. Tenperature and barometer and candle power of the gas, quality the amount of tests that have been made of the gas practically the general information in regard to the manufacturing end of the business during the previous month.

Q. I suppose these reports contain the heat value or thermal value whatever you call it?

A. I don't recollect whether we are putting that on the report or not now.

Q. Have you given us everything that you do put on that you remember?

A. All that I remember of now.

Q. Is that report, the one we are talking about now, is that report made out in duplicate?

A. No, sir; that is copied from our record here.

Q. So that that report when completed is forwarded to the home office at Philadelphia?

A. Yes sir.
Q. And kept there?
A. Yes, sir.
Q. Or is it returned to you?
A. No it is not returned, we have all the data here.
Q. So if we should want reports made by this office here, the monthly reports covering the items and information you have just stated, to put into the record which is made out on the first of the month you would have to get them from the home office?
A. Yes, you could get the same data here.
Q. I am not asking about data, I am asking about the report itself?
A. Yes, sir.
Q. Now what goes into the report made on the third of the month?
115 A. Well now you want to know the dates and what is in all these reports, it is going to be pretty hard for me to tell you because I don't make the reports out individually. There is usually a large package about that big of reports that come in during the month.
Q. You know in a general way what is going on up there?
A. I would prefer to take the time to refresh my memory on that.

COURT: What he wants to know is in a general way.

A. In a general way reports come in during the first fifteen days of the month.
Q. No I want to know now that is the one you say you send the company on the third.
A. Well, I would prefer to not answer that question until I had an opportunity to refresh my mind on the dates of these reports and what they contain. I am familiar with the reports when I see them, know whether they are correct, but I pay very little attention to the dates on which they come in.
Q. Who in your office would have more accurate information about it than you?
A. Well the heads of the different departments that make these reports to me would know.
Q. They don't make up the general report do they?
A. Yes, they make up these reports, turn them over to me and I pass on them and send them along.
Q. The heads of the different departments, all they do is to report what is properly reportable from their department.
A. That is all.
Q. That then comes to you?
A. Yes, sir.
Q. You make up or somebody for you makes up the general report?
116 A. Yes, sir.
Q. If you don't remember the one that goes in on the third, you said one went in the 10th. What goes in that report?
A. I can't answer that question accurately the way you want it,

and I would prefer not to do so now if I could be allowed to give it in accurate form.

COURT: Well he is not asking you to be accurate, just give your best recollection, that is all you can do.

A. Well your honor I can't remember these dates specifically what goes in on the specific dates.

Q. If you don't remember you may look it up at your leisure and *and* we will reserve that part of your cross examination until later but I will proceed a little further along that line and ask you what is done with the reports that are made on the third what do you do with them after completed?

A. Mail them.

Q. Where do you mail them?

A. To Philadelphia.

Q. You keep a duplicate here?

A. We keep the original record here.

Q. I am not asking you that, asking you whether you keep a duplicate of this report as it is made up, this general report?

A. You mean the report of the operations of the previous time?

Q. On the third or whenever you say you send it in or the 10th.

A. You mean of the operations of the previous month, report of the operations of the previous month?

Q. If that is what goes in with it, yes.

A. That is the report I described to you before.

Q. When is that sent in?

A. That is sent in the first or second.

117 Q. That we have been over and we have got these reports located, we know where they are and all there is of them. I am now ask- about reports made later on the thi-d, the sixth and 10th you say? Are any of those kept here?

A. Some of them are, but not all.

Q. What ones are kept here?

A. Well the report of our sales department of the new business I keep a copy of that here.

Q. Right at that point, what is your sales department?

A. Sales of stoves and fixtures and all kinds of lighting appliances.

Q. Anything else?

A. Well that practically covers the ground.

Q. Your sales department——

A. It is what we call our new business department.

Q. Stoves lamps, and light fixtures and includes gas too?

A. Yes simply includes cubic feet of gas sold.

Q. Do you handle anything else except the items that have just been mentioned?

A. Practically nothing else, no. I think that covers the whole field, domestic and industrial field, as we handle it.

Q. The report of your sales department, when is that made?

A. That is mailed as soon after the first of the month as we can get it ready. Generally from a week to ten days.

Q. And is a duplicate of that report kept here?

A. Yes, I keep a duplicate of that report.

Q. You have a duplicate of that?
A. Yes, sir.
Q. You have duplicate reports showing sales of your entire business there covering all the months I suppose of the year 1910
118 and 1911 up to this time.
A. I think I have them all yes.
Q. And for 1909?
A. I think I have them all yes.
Q. And 1908?
A. Yes, sir.
Q. 1907?
A. Well I don't know how far back they go. Some of the older ones may not be here.
Q. When did you commence the practice of making out these reports in duplicate?
A. Oh I don't remember, six or seven years ago.
Q. Right away when you came here didn't you?
A. Yes, most of them.
Q. That practice had not been followed prior to your administration had it?
A. No.
Q. That was one of your plans and methods?
A. Yes, sir.
Q. That would begin as early as 1903 would it not?
A. I began with some of it, keeping duplicates of some of them.
Q. There was no one else in charge of the business of the Unider Gas & Improvement Company's business at Des Moines but you was there?
A. You mean any local man in charge here?
Q. Yes?
A. No.
Q. Right from the beginning?
A. Yes sir.

Judge CARR: We object to the question as not proper cross
119 examination and assuming a fact not proven by the evidence, the inquiry is as to the business of the United Gas Improvement Company not the business of the Des Moines Gas Company.

Q. Now when you came here in 1903 from whom did you get your instructions with respect to what you were to do and what property you were to take over?
A. My instructions came from the superintendent of works in Philadelphia that I had been appointed manager for Des Moines of the Capital City Gas Light Company in Des Moines.
Q. Where did you receive them?
A. Receive what.
Q. These instructions?
A. In Philadelphia.
Q. You were at the home office were you not?
A. I was at the Philadelphia office of the United Gas Improvement Company.

Q. That is the home office isn't it?

A. Yes, sir.

Q. Do they have any other general headquarters except at Philadelphia that you know of?

A. Not that I know of.

Q. Who at that time was general superintendent as you say?

A. Mr. Rollin Norris, he was superintendent of works.

Q. Was it from him you got your instructions?

A. It was.

Q. And in response to the instructions you got from him you came to Des Moines and took over the business.

A. I did.

Q. What else besides this real estate and business did you take over at that time?

120 A. I don't understand the question. I took charge of all the property of the Capital City Gas Light Company at that time.

Q. That don't mean much to me Mr. Haines. What was that property?

A. It consisted of the manufacturing plant, besides the real estate already mentioned and distribution system mains, and meters, and services and wagons, teams, equipment, tools, supplies all the general paraphernalia and office records that go with the gas business.

Q. Anything else?

A. I think that covers the ground.

Q. Well they were operating at that time just as they are now were they not, a retail store?

A. Oh yes, that business was——

Q. Well tell us what that was and the extent of it?

A. The business of selling stoves and fixtures and lamps mantels, glassware, in order to develop the use of gas in all branches.

Q. Street lighting?

A. Yes, at that time the Capital City Gas Light Company lit the streets.

Q. Do you know about how many street lights they had at that time?

A. I don't recollect.

Q. Had a large number did they not?

A. Not very many, I think about six or seven hundred.

Q. At that time Mr. Haines how many miles of main did they have?

A. Oh I don't recollect.

Q. You have some recollection about it don't you?

A. I think it was something less than a hundred miles or less than ninety miles. I have forgotten what it is. It is in the record

121 here.

Q. In what record?

A. The records we offer- the city here some time ago, November. We offered to show them all this and whan you have been discussing here in November.

Q. Well that is not what I am asking you Mr. Haines. What I

want to get at now is the number of miles of mains that this company had when you took charge of it in 1903.

A. I can't say from recollection. It was something less than a hundred miles my recollection is.

Q. How much less?

A. That I can't say.

Q. Was there seventy five miles?

A. I won't say.

Q. Was there 50?

A. I won't say.

Q. 40?

A. I won't say.

Q. Was there 20?

A. I won't say.

Q. How many service connections were there?

A. I can't say that.

Q. About how many?

A. I suppose there were about in the neighborhood of 8,000 something like that.

Q. 8,000 in 1903. And about how many meters?

A. About the same number of meters.

Q. Now why won't you say that there was more than 20 miles of mains?

122 A. Of course there was more than twenty miles of mains, no question about that.

Q. You have some idea about how many there were?

A. As I said something less than a hundred, but I would not swear to it as I don't know. I can look it up for you and let you know tomorrow. I have no objection to telling you at all, the only question is I don't like to trust my memory on a detail of that kind.

Q. You haven't looked it up recently?

A. No.

Q. You had looked up all these other facts you testified to this forenoon so you knew exactly how many you had, knew the connections and how many miles of main you had, looked that up for the purpose of your testimony?

A. Certainly.

Q. But you haven't looked up anything else?

A. No, sir.

Q. Now in 1903 when you came here, you immediately investigated the relation of your company and the ordinances that were then in existence did you not?

A. I read the ordinance yes.

Q. So that you knew just what the arrangement between the company and the city was immediately after you came here in 1903?

A. You mean in what respect.

Q. Well in any respect with relation to rates and the furnishing of gas and the amount that the company should charge for it.

A. Yes, sir.

Q. You knew just how long that arrangement was to run didn't you?

A. Showed in the ordinance, yes. I read the ordinance.

Q. In 1903 Mr. Haines, you say that there was something
123 less that a hundred miles of main. Do you know how long that main had been down, do you know how long any part of it had been in use.

A. Part of what main?

Q. Of the less than a hundred miles that was in service when you came here.

A. No I only know in a very general way.

Q. Well in a general way, tel- us.

A. I don't know of my own personal knowledge except that it was commonly known that mains had been laid here since I think 1864 there had been mains or 1865, along in there, and that there was at one time, from general knowledge there was a gas works at the point of the 'Coon down here which was moved over in 1876 to the other side of the river where it now is.

Q. Are you still using some of those mains?

A. I suppose so yes.

COURT: These questions you are only answering from information are you?

A. Yes, such questions as that.

Q. Well is there anybody here from whom that information could be gotten except you that you know of?

A. You mean as to the period of building the gas plant?

Q. Yes, as to the physical history of this plant?

A. I suppose there are many people here in town who know about it.

Q. That is, in charge of this business or connected with this business?

A. No.

Q. It is somebody in connection with the business that we want the information from. Now about what part of the less than
124 hundred miles of mains that you say was in use when you came here is still in use.

A. Practically all of it and more.

Q. And the 8,000 service connections that were in use when you came here how many of those are still in use as they were originally laid?

A. Well that I don't know, there is 8,000 and many more added, some of them may have been renewed or replaced and of that number I can't tell you specifically which ones are still in use and which ones not.

Q. As a matter of fact have any of them been renewed?

A. Oh yes, a great many of them.

Q. Do you know any instance where a service connection that was in in 1903 has been taken out and substituted with a new connection?

A. Oh yes there has been a great many of them.

Q. How many miles, can you give any idea as to the number of miles or number of connections?

A. No. I can find out for you. It is all a matter of record on our books.

Q. You haven't that in tabulated form anywhere?

A. I don't believe we have had now no.

Q. When did you last examine the books to ascertain these facts?

A. I don't know when those repairs became necessary, they are made as part of the operation of the plant just the same as a saw would be filed or tool be sharpened.

Q. You say now you have about 17,000 service connections?

A. Yes, sir.

Q. When was the largest part of these 17,000—the additional 8,000 I suppose you mean by that 9,000 have been put in since you
125 came here?

A. About that, yes.

Q. During what period was the majority of these service connections made?

A. Well they have been—of course as the city grows and the built up portion expands like the waves from a pebble dropped in water the number of them increases in each direction.

Q. That is not what I asked you. The question I am trying to get is what particular period if there was any period that the majority of these 9,000 service connections were made?

A. Well they are added so many each year. Added from year to year as people demand them.

Q. The same number every year?

A. No naturally not because it would depend upon the number of buildings erected.

Q. What portion of them were put in in the last three years?

A. I can't tell you exactly, but I should say they run about twelve or fifteen hundred a year now, somewhere in that neighborhood.

Q. How did they run in the last three or four years, that was an even increase at that rate the last three or four years?

A. About that. As the city grows larger of course the number each year increases.

Q. You have 17,000 now.

A. Yes, about that.

Q. How many dead ones?

A. I can't answer that, I don't know.

Q. You can give us about how many can't you?

A. Well it would be simply the best of my general judgment and guess.

Q. Is there anybody else has any better judgment about it than you?

A. Yes, I suppose somebody who has examined them.

126 Q. Do you know of any body who has examined them?

A. Yes, sir.

Q. Who is it?

A. He will be called I suppose later as a witness, later on.

Q. You have his information have you.

A. Not with me.

Q. He had no information in the beginning except what he got from your books?

A. Oh yes I sjppose he did. He will be able to tell you about that when he is called.

Q. You don't know about that?

A. Not of my own knowledge.

Q. Well give me your judgment then about how many there are.

Objected to as not proper cross examination and because the witness has stated that he has no information on the subject, his judgment is certainly not valuable.

A. I should say probably about five per cent of them are not in use, possibly less than that.

Q. How about the meters, how many meters are out that are not in use?

A. I believe that would run probably about six per cent of the meters which are cut off and not in use today, but of those some will be turned on tomorrow and some more turned off, so it keeps about six per cent I believe.

Q. Are you willing to put it six per cent and leave it?

A. As far as I know yes.

Q. Have you investigated it?

A. I have previous times from time to time.

Q. You know as a matter of fact what is the rate now?

127 A. Not any closer than that. I know it runs about six per cent.

COURT: About six p-r cent of your meters that are out are not in use?

A. Yes, sir; A man will move into a house and ask us to turn on his meter and we will turn it on. He will move out again or somebody else move out and we shut their meter off and leave it shut off until somebody else goss into the house provided they go in within a few months. If they don't occupy the house within that time we remove the meter and test it.

Q. The meters belong to the company do they not?

A. Yes, sir.

Q. So you know at once when a meter is not in operation, you know it at once?

A. I don't personally no.

Q. No but the company does.

A. Yes, of course.

Q. You told Judge Carr that you had complete charge of the local plant and managed it, disbursed the funds, and did everything else that was properly under the manager's power. Now I suppose that included the purchase of material.

A. It includes part of the purchase of material, that is the ma terial which is purchased locally.

Q. What is purchased locally?

A. Well the current small supplies and materials. It does not include such items as coal and coke which are purchased under con tract by the purchasing agent of the company in Philadelphia.

Q. How about oil?

A. Oh I meant oil. The coal is purchased locally because we have local mines to buy it from, but the coke and oil are purchased by the purchasing agent in Philadelphia.

128 Q. Under contract.

A. Under contract yes.

Q. Have you any of those contracts?

A. Yes, I think I have copies of them—no I have not copies of the contracts either, I only have copies of some of the essential features in the contract, such as quality and quantity to be supplied, such things as that.

Q. Where are the contracts under which coke and oil is furnished to the Des Moines plant?

A. I don't know, I suppose they [illegible] in Philadelphia. That is the original contracts as I said I have not copies of the original contracts I believe as executed here. I believe I have not copies of the original contracts as executed here, but I have memoranda of the essential features of the contract as it concerns me.

Q. Have you signed any of these contracts?

A. I have not sign- them, they are signed by the purchasing agent I suppose.

COURT: Of the United Gas Company?

A. Yes, sir.

Q. Purchasing agent of what?

A. Des Moines Gas Company and United Gas Improvement Company.

Q. Who is the purchasing agent of the Des Moines Gas Company?

A. Mr. J. A. Pearson.

Q. Where does he live?

A. Philadelphia.

Q. He is purchasing agent of the United Gas & Improvement Company?

A. I believe he is, yes. He signs himself so I think.

Q. He don't ever sign himself as purchasing agent of the Des Moines Gas Company does he?

129 A. When he buys supplies for the Des Moines Gas Company he always does.

Q. Did you ever see a contract signed that way?

A. Yes, sir.

Q. When?

A. All of his orders and correspondence are signed that way.

Q. You have seen his contracts?

A. I have never seen the original contracts for the purchase of oil or coke, but other contracts he makes for other materials which he buys to supply us were signed that way.

Q. Does he buy any other material for this company?

A. Yes, sir.

Q. What other material?

A. He buys stoves, lamps, mantles, glassware.

Q. The truth is that all of that part of the business of this gas company, the purchase of the oil and the coke and the stoves and

all of that class of property is purchased by the parent company and shipped to you?

A. All of the supplies which can be contracted for in large quantities and a better price obtained on that account are bought through the purchasing agent, but for little items which can be bought locally in case of rush for repairs or anything of that kind, they are bought through my order here.

Q. You don't buy any stoves do you here in Des Moines?

A. Practically no, no sir.

Q. None made here?

A. No, none made here.

Q. You don't buy any of these fixtures here do you?

A. Occasionally I dom yes.

Q. If you want one hurriedly and can get it from some-
130 body else you get it in town?

A. Yes, sir.

Q. But all stock and mains and pipes, all that class of material is purchased by this purchasing agent of the United Gas & Improvement company?

A. Yes, all material bought in bulk and a better price obtained because bought in bulk, is handled in that way.

Q. This plant over here when you came to Des Moines was not being operated just as it is now is it?

A. No I don't suppose so, it depends on what respect you mean?

Q. The method of making gas was not the same?

A. When I came here the Capital City Gas Light Company was making a mixture of coal and water gas.

Q. Now you are simply manufacturing water gas?

A. Now we are manufacturing water gas only.

Q. When did you commence doing that?

A. About five weeks after I arrived.

Q. Up to that time the plant had been run so far as you know as a mixed coal and water gas?

A. Yes sir.

Q. About how much oil do you use over there, and have you been using since you have been here say yearly, annually?

A. Well it is the neighborhood of thirty to thirty five thousand barrels a year.

Q. How is that shipped h-re?

A. It is shipped in tank cars.

Q. Where from?

A. Well some of it comes from the Kansas field and some from the Ohio field.

Q. No- we will stop there and take a car, a car of oil or
131 tank car of oil is delivered here for the Des Moines branch of this gas company say today. When do you get the information with respect to its cost and all that sort of thing?

A. The oil is shipped here on a contract with one of the oil companies, sometimes the Standard Oil Company, sometimes the Sun Oil Company or whatever company they purchase it from. They send a notice when the car is shipped.

Q. Who sends that notice?

A. The company which furnishes the oil, they send us instructions where to return the tank car. They send us a bill for the oil, a bill of lading, and we pay the bill as it is rendered and return the tank car to the point they desire it sent to.

Q. In this particular case that I am trying to use as an illustration you get from the oil company and not from the gas company a statement as to the amount of oil shipped and the price, do you not?

A. Yes, certainly.

Q. When you do that do you have anything in your office from which you can determine whether that price is the price fixed in the contract or not?

A. Oh yes of course.

Q. What do you have?

A. I told you I had a memorandum showing the terms of the contract that would apply to my operations here.

Q. Then in other words you have a complete copy of the contract so far as it affects Des Moines?

A. Have a copy of all vital features to Des Moines and general wording of the contract I don't think I have any copy of that. The information that I have is simply the price, the quantity, the

132 quality that is to be delivered, the terms of payment.

Q. The reason that that situation exists is because, is it not, that this same United Gas Improvement Company has other plants like the Des Moines plant where oil is furnished under the same contract?

A. Under the same contract?

Q. Yes.

A. I don't know anything about that. The advantage to be obtained through the purchasing agent is that he can in buying a large quantity can get it at a better price.

Q. Well there would not be this large quantity for Des Moines?

A. No, it might be a large quantity for a number of other places, probably it is.

Q. The reason he buys a large quantity is because they have a number of places to use it.

A. That sounds reasonable.

Q. Cedar Rapids is one of those places?

A. I never had any information it was, always heard the contrary.

Q. Burlington?

A. Burlington is a property in which they are interested, what that interest was I don't know.

Q. Any place in Iowa?

A. Yes, sir.

Q. Where?

A. Sioux City.

Q. Any other place?

A. No not in this state to my knowledge.

Q. Boone?

A. No.

133 Q. Ottumwa?

A. No.

Q. The same is true of contracts for coke?
A. Certainly.
Q. Coke is shipped here the same *was as* oil?
A. You mean the same general terms?
Q. Under the same circumstances you have just related?
A. Yes, sir.
Q. Council Bluffs belong to the company?
A. I never heard of it, having any connection with the United Gas Company.
Q. You say it is not?
A. I never heard of its having any connection, always heard the contrary, never to my knowledge.
Q. Most of your coke comes from Milwaukee?
A. At present, yes.
Q. From whom does the coke come?
A. Purchased from Pickens, Brown & Company, agents for the Milwaukee Gas & Coke Company.
Q. What is the Milwaukee Gas & Coke Company, does it have any relation to the United Gas & Improvement Company?
A. Not to my knowledge.
Q. You say not to your knowledge?
A. Not to my knowledge. It has a different process from any of the processes——
Q. Isn't it true that it is one of the plants in which the United Gas Company has an interest?
A. Well I should say it is absolutely untrue, but as I said before I am not familiar with the stock certificates of either company.
Q. You are willing to say it is absolutely true?
134 A. I am willing to say it is absolutely untrue so far as my knowledge goes.
Q. About how much coke do you get annually from Milwaukee?
COURT: It seems to me you are anticipating.
A. From six to eight thousand tons a year.
Q. Has it run that way right along since you have lived here?
A. Naturally no because the business has doubled since I came here, more than doubled.
Q. Over what period did it double, when did it commence to double?
A. Well I suppose it commenced the day after I arrived and continued ever since.
Q. Commenced right away when you got here.
A. Yes, sir.
Q. Been doubling up every year since?
A. Not as fast as that no sir.
Q. Well about how fast.
A. That will all be shown——
Q. That is not the question, about how fast.
A. It has about doubled I suppose in the last six or seven years.
Q. Then the last seven years is the period in which you had the largest growth of the business here in Des Moines, is that right?

A. I should say in general that it right, yes.

Q. There never was so far as you know, and you have general information about it a seven year period before in the history of the plant when the business increased as rapidly as it did the last seven years?

A. I think that is right, yes.

Q. Now just a little bit about your plant over here. All of this property except two lots that are in Valley Junction is located east of the Des Moines river and south of the main line of the
135 Rock Island railroad?

A. Yes, sir.

Q. And is it not true that that is in a part of Des Moines that is the least valuable and less valuable in a commercial way of any other part of the city?

A. I should say directly to the contrary, from my experience and judgment on real estate in the city.

Q. The values over there are higher than they are on the west side?

A. For similarly situated property in respect to trackage and other facilities I should say they were less valuable than the most on the west side of the river.

Q. Do you know of any property sold in that neighborhood at all the last seven or eight or nine years except what you bought yourself?

Objected to as not cross examination.

A. Oh yes I know in a general way of several.

Q. What did you pay for the lots you bought yourself?

Objected to as not proper cross examination and immaterial.

Q. Lots 3 and 4 in K as I remember it Scott & Dean's Addition, what did you pay for those?

Objected to as not proper cross examination and immaterial.

A. That I believe was the first property that I bought before the company had ownership interest in there in Block K and the man that owned it wanted to get out of there and I paid him $7,500 and I think a small commission over that if I recollect.

Q. For the two lots?

A. Yes for the two lots.

Q. Did you buy any others besides those two lots over there?

136 Judge CARR: I want it understood I am continuing the objection to the testimony on this subject on the ground that it is not proper cross examination and immaterial.

A. I bought lots 9 and 10 in Block M.

Q. For the Gas Company?

A. For the Gas Company.

Q. And what did you pay for these?

A. $4,500 and a commission on it.

Q. A commission, what do you mean by that?

A. I think the commission was $150, something like that.

Q. You mean you paid somebody $150 to get them for you?
A. Yes, sir.
Q. At $4,500.
A. I think that was what it was yes.
Q. Where are lots 9 and 10 with respect to the main plant of the company.
A. Southwest of all the other property and below the Q tracks and on lower ground than all the other property, they are subject to overflow.
Q. All of this ground is lower than Court Avenue, Walnut street and Grand Avenue isn't it?
A. All of what property?
Q. All of the real estate they own over there?
A. The real estate the Des Moines Gas Company owns?
Q. Yes.
A. Certainly not.
Q. Don't the river run from Grand Avenue towards Court Avenue?
A. It is down the river but it is not lower in elevation.
Q. Have you bought any other property in there since you came here for the company?
137 A. No, sir.
Q. Been any buildings erected there since you came here?
A. You mean on the gas property.
Q. Yes.
A. Oh yes there has been a generator house.
Q. When was that built?
A. That was built last year I think.
Q. How much of a house is that?
A. Well if you want the dimensions I would rather refer to the memorandum, because I can't——
Q. Is it a brick house.
A. It is a brick house, brick and steel construction with a slate roof.
Q. One or two stories?
A. It is equivalent to about three or four stories, but it is divided in the center with one floor because the arrangement of the machinery in there demands that.
Q. Any other building built since you came?
A. An extension to the office building.
Q. What is the character of that?
A. That is a one story extension similar in design to the office building and about I think 12 feet additional.
Q. What is the office building?
A. It is the main office of the works.
Q. I know but what is it? Brick or wood?
A. Oh no brick building with slate roof.
Q. Put about 12 feet additional on that?
A. I think so.
Q. Any other buildings built over there?

138 A. Yes, built two pump houses.

Q. What is the character of those?

A. One of them brick—both of them brick with tar and gravel roof.

Q. One or two stories?

A. Well there is one that is simply a small one story building and *and* the other is one story above ground and a pit excavated as a basement.

Q. Both small buildings?

A. Both small buildings.

Q. Any others?

A. There have been alterations to the other buildings, but no detached buildings except an oil house.

Q. I am talking about buildings, not repairs or anything of that kind?

A. Well there was a small oil house—you mean since I came here?

Q. Yes, since you came here.

A. And a holder with capacity of 1,132,000 cubic feet with a steel tank.

Q. When was that purchased?

A. I don't know when it was purchased, it was erected in 1903.

Q. Do you mean that it was an old one when you got it.

A. No, sir.

Q. Why do you say you don't know when it was purchased?

A. Because I didn't purchase it. It was in process of construction when I came here.

Q. So we are safe in taking it for granted it was new when you came here?

A. It was furnished new when I came here.

Q. That was in 1903?

139 A. Yes, sir.

Q. That is still there and in use now?

A. Oh yes.

Q. Anything else?

A. Last year we erected a meter house.

Q. What do you mean by that, a place to store meters?

A. No, it is a house to house the station meter. The station meter is a large meter to measure the output of the gas as it comes from the works.

Q. Is that much of a building?

A. I can't give the dimensions of it off hand.

Q. A small affair isn't it?

A. You can best tell from the record the size.

Q. Brick?

A. Brick.

Q. One story?

A. One story building with slate roof.

Q. Anything else you think of.

A. Well there is a boiler house on Block B.

Q. When was it built?

A. That I think was built about three years ago.
Q. What is the character of the building?
A. That is a corrugated iron and steel building.
Q. One story.
A. Yes, sir.

—. ——.

A. There is a boiler house on Block C of brick slate roof to house the boiler.

Q. Is there any part of the machinery down there in the main plant that is not in operation now.

A. You mean at this present moment?

140 Q. Yes.

A. I suppose so yes.

Q. Is there any part of it that is not in operation right along that has been abandoned for some time?

A. Well I would not say it has been abandoned, part of it has been shut down.

Q. Well that you don't use?
A. That we don't use?
Q. Yes.
A. I suppose possibly there is machinery there we don't use certainly.
Q. Much of it?
A. No, I don't think so.

Q. You said you bought two lots in Valley Junction. Does this company have a lighting business in Valley Junction operated from Des Moines?

A. The Des Moines Gas Company has yes.

Q. Well that is what I mean. About how many miles of main do they have.

Objected to as immaterial and not proper cross examination.

Q. Is it not part of this plant here, all operated from here, connected with this plant?
A. Yes, it is operated from the Des Moines Gas Company office.
Q. You have charge of it?
A. Yes, sir.
Q. It is not an independent and separate plant?
A. Not at all.

Q. It is all operated in connection with the Des Moines Gas Company's plant here in Des Moines.

A. Yes, sir.

141 Q. You have made all the arrangements and carried on the negotiations with Valley Junction for the franchise, did you not?

Judge CARR: I want it understood that this is all objected to as not proper cross examination and immaterial.

A. Yes, sir. That is I did——
Q. That is you represented the Des Moines Gas Company?
A. I represented the Des Moines Gas Company yes.

Q. The franchise was taken in your name in the first instance wasn't it?

A. Yes, sir.

Q. And is still carried that way isn't it?

A. I think the franchise has been assigned to the Des Moines Gas Company.

Q. At any rate it was originally taken in your name?

A. It was taken in the name of Jansen Haines and W. B. Keffer, grantees.

Q. Mr. Keffer is the secretary up there?

A. Yes, sir.

Q. You furnish Valley Junction gas that is made over here on the east side of the river in these buildings that we have been talking about this afternoon.

A. Certainly.

Q. And furnish it to them under the ordinance that you secured the passage of over there.

A. Yes, sir.

Q. And in that ordinance I believe there is this same two per cent clause that is in the ordinance under which you furnish gas to Des Moines?

A. No, sir, not to my knowledge.

142 Q. Don't you pay Valley Junction two per cent?

A. No, sir.

Q. But you pay to Des Moines——

A. The city of Des Moines gets two per cent for the gas sold outside to Valley Junction.

Q. That is you pay the city of Des Moines two per cent of the gross receipts on the Valley Junction business?

A. Yes, sir.

Q. That is under separate contract from the ordinance under which you were operating or is it under the same one.

A. I don't recollect, I suppose that is a matter for legal opinion not being a lawyer I can't tell.

Q. That plan was worked out since you came here?

A. Yes, the two per cent is paid on all our gross receipts from the sales of gas and has been independently of where it was sold or when sold or to whom sold except from the period of February 7, 1893 on. In 1893 this compromise was agreed upon with the city by which we should pay them two per cent of the gross receipts from the sales of gas subsequent to that period and pay it semi annually.

COURT: Been paying it ever since.

A. Yes, sir.

Q. Isn't this the situation, are you not mistaken about it being paid under your original arrangement. Isn't it true after you got the franchise from the town of Valley Junction, or city of Valley Junction that you procured the council here in Des Moines to grant consent to your making connections and in return for that consent you paid this two per cent on the Valley Junction business?

A. I would have to look that up, I don't know.

143 Judge CARR: I want to state here by way of suggestion that this is a matter of ordinance and if the provisions of the ordinance are material the ordinance itself is the best evidence of what the provisions are. I don't see how it could be of any use in taking Mr. Haines' opinion in regard to it.

Q. I won't press that if you don't know what the arrangement was.

A. That calls for a sort of judicial opinion I should think.

Q. You did, however, know shortly after 1903 when you came here that the then arrangement with the city would expire the first of January 1911?

A. Yes, sir.

Q. You knew that?

A. Yes, sir.

Q. Now you told Judge Carr this morning that you was away from home in October when the city council appointed a committee or directed a member of the council and the legal department to take some action with respect to the gas situation in Des Moines?

A. Yes, sir.

Q. Now up to that time what had you done in the way of ascertaining just what property you had there, what was the value of it what it cost to make gas and all that sort of thing?

A. Up to October 1st?

Q. Yes.

A. It was subsequent to that——

Q. Well I am not asking subsequent, I say up to that time what had you done in the way of ascertaining what property you had and what it was worth and what it cost to make gas in Des Moines.

Judge CARR: You mean aside from general knowledge I suppose?

Q. Yes, aside from general expert knowledge?

A. Nothing that I know of. I didn't feel that it was my
144 place to do anything of that kind.

COURT: The question was, what had you done?

A. I hadn't done anything except continue the operation of the plant.

Q. What did you expect would be done on the first of the year when your arrangement expired with the city, what was your plan?

Objected to as an improper question, immaterial, not proper cross examination being immaterial what his expectations were.

COURT: In one view of it I am inclined to think the question is a proper question.

A. I don't think that I expected anything. My plan was simply to continue the operation of the plant and sell the gas the same.

Q. You knew Mr. Haines, didn't you, that the city council was not in possession of the information necessary to ascertain the value of your property or the cost of making gas in Des Moines in October?

A. Yes, that is why I offered to give them the opportunity to obtain the information.

Q. I didn't ask you why you offered it, I simply wanted to know

if you did not know they didn't have that information. Not it was your plan was it to just continue the old arrangement after the first of the year and continue to charge the city and th- consumers the same rate for gas that you had during the period of the former arrangement, that was your plan was it?

A. Yes, sir.

Q. And that was the intention of your company was it?

A. Yes, sir.

Q. There was no purpose on the part of the company or you to make any reduction whatever in the price of gas after the 1st of January 1911?

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A. No purpose on the part of the company or us to make any r-duction or increase in the price of gas.

Q. Proposed to go on with the same arrangement that you had for the past year?

A. Yes, sir.

Q. When you commenced your debate with Commissioner MacVicar—you will pardon me for terming it that—it was your intention was it to be entirely frank with the city in the information that you gave?

A. Yes, sir.

Q. You had no intention to mislead the city council or public in any statement that you made in your letter?

A. Absolutely none.

Q. Why did you put then into your letter this statement, the letter of November 22d that has been marked in this case Exhibit 7—let me withdraw that question for a moment. If I understood your testimony correctly this forenoon you stated that you wrote the first letter to Mr. MacVicar in response to a verbal suggestion from him with respect to a change in the company's arrangement with the city. Am I right in that?

A. I don't know whether you quoted the testimony right, but what you say is practically true.

Q. Now you say practically true, what is the real truth?

A. The real truth was it was not a suggestion, it was a request from Mr. MacVicar for a proposition.

Q. What did Mr. MacVicar say he wanted you to do?

A. My recollection is that he asked if I would submit a proposition to him of what we would do in respect to the price of gas after the first of the year. If those were not the words they conveyed the thought as I recollect it.

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Q. Now when was that that you had that talk?

A. That was on the 1st of November I think, either the 1st or 2d of November immediately on my return.

Q. 1910?

A. 1910.

Q. Now what did he say to you with respect to what the city expected or hoped in regard to the new arrangement as to rates?

A. My recollection is that he said that the city, or I don't think he said the city, he said that he expected a ninety cent rate and subsequently asked me for this proposition. I met him by appointment in his office at the city hall. I think it was on November

first, just after I came back to the city. I had been in the east attending a meeting of the American Gas Institute when this ordinance was passed.

Judge CARR: The resolution.

A. When this resolution was passed.

Q. Then taking your answer right at that point, up to the time of the passage of that resolution you had done nothing in the way of making an inventory of the gas company's property?

A. No, sir.

Q. When if ever was an inventory made of that property after your connection with it prior to the one that was made within recent weeks?

A. There was no detailed inventory made during my connection with the company. There was a rather perfunctory inventory made in 1908.

Q. Where is that inventory?

A. I don't know.

Q. Perfunctory in what respect?

147 A. Well it was gotten up rather hurriedly and rather roughly for *for* the purpose of taxation.

Q. And was furnished to the assessor was it?

A. I think the totals were furnished to the assessor. I don't believe the details of it was.

Q. Who was the assessor at that time?

A. That would be——

Q. Charlie Schramm wasn't it.

A. Schramm I think.

Q. One of the present commissioners?

A. I think so, yes.

Q. You furnished him in 1908 made under your supervision a general statement as to the value of the gas company's property in Des Moines didn't you?

Objected to as not proper cross examination.

A. Yes, sir.

Q. When you furnished that to him it was for the purpose and you knew at that time it was for the purpose of advising him with respect to the value of the property for the purpose of making an assessment as assessor did you not?

Objected to as not proper cross examination.

A. Well I made my report to him on the blank under this section 1323 of the code.

Q. Made it under oath too didn't you?

Objected to as not proper cross examination incompetent and immaterial.

COURT: Of course the paper ought to be produced.

Q. You made that statement under oath too didn't you?

Same objection, not the best evidence, immaterial, not proper cross

examination, the witness has not given any testimony as to
148 the value of the property, has not been interrogated in regard to it at all.

COURT: There is only one theory upon which it might be competent and that it is not necessary for me to state here. Of course the contents of the paper, you would not have a right to ask him about the contents of the paper.

Mr. BYERS: I don't want that now, I will take care of that later. What we want to know of the witness is what he did.

A. I don't know or recollect whether I made that statement to him any more than talking to him, under oath.

Q. You signed your name and swore to the paper didn't you?

A. I don't think I did. The paper would show for itself.

Q. If the paper purports to show that you swore to it, that is the fact?

A. Yes, certainly.

Same objection and calling for a conclusion.

Q. On November 22d in response to Mr. MacVicar's request for a proposition from your company you gave in that letter certain facts and figures with respect to the business of the company in Des Moines?

A. What letter is this?

Q. It is the letter of November 22d, the first one of the series.

A. Yes, sir.

Q. You knew when you wrote that letter and mailed it to Mr. MacVicar that the purpose of the letter or the purpose of MacVicar in asking for a proposition was to base an ordinance upon the part of the city council involving the gas situation in Des Moines didn't you?

Q. And it was with that in view you wrote the letter was it not?

149 A. It was at his request for a proposition.

Q. Why did you make up this sort of a statement after stating the earnings of the company and deducting from the average gross revenue the expenditures for operating expenses and taxes, and *and* the $49,000 item for depreciation, a sum which you say is *is* ascertained by taking ten per cent of the average annual gross revenue, then you say this leaves $139,191.52 as the average annual net income received by the company for interest and profits which amounts to 8 per cent on $1,739,894. Why did you make that statement?

A. Read the rest of it, you will find out Mr. Byers.

Q. Answer me as to that, why did you take the $1,739,894 as a basis?

A. I will explain it to you. I took the average annual net income of $139,000 and divided it by 8/100 or 8 per cent and that gives $1,739,000. At that time we had no knowledge of the value of the property in sufficient detail and accuracy to state it or we would have stated it and for that reason I said that, however, I believed that the value of the property is largely in excess of this sum, which it is.

Q. You were willing at that time when you wrote this letter to take the responsibility upon yourself of submitting a proposition to the city council upon the basis of the value of the property of this Des Moines Gas Company at $1,739,894?

A. The question is was I willing to take the responsibility?

Q. When you wrote this letter you were willing and that is the thought you wanted to convey to Mr. MacVicar and the council of the city of Des Moines to be such that the earnings of the company was shown on your books at the time you -rote this letter and
150 measured upon the basis of the value of the total plant of $1,739,894?

A. No, sir; that has nothing to do with it at all. The statement was made because I did not have any competent figure to give as the value of the property.

Q. Well did the council have any?

A. And therefore I took the earnings and divided it by 8 per cent and on the sum arrived at by that division I—rather I obtained the sum of $1,739,000. Now that was not understood to show the value of the property, had no connection with the value of the property, the figure was given to show that it would only earn 8 per cent on less than the value of the property.

Q. Why did you adopt the 8 per cent proposition. What did you want to convey to the council and public by these figures?

A. It was just after the Master in Chancery had established the 8 per cent as the rate of return on investment which the Des Moines Water Company was entitled to and I used that simply as a precedent.

Q. Now let me put this question to you, you as general manager of the Des Moines Gas Company with all the information that you yourself had and which you had gained in a period of about eight years as not only general manager with respect to physical property, but general manager and general disbursing officer of the company in Des Moines, you were willing with that information to accept 8 per cent, a return of 8 per cent upon a valuation of $1,739,894?

(Question withdrawn.)

Q. When you wrote this letter Mr. Haines, you were undertaking to advise the council through Mr. MacVicar as to the income of the company here in Des Moines, didn't you, you set out the
151 figures as you claim they were and would appear from your books?

A. Yes, sir.

Q. Then after you had done that and found what you claimed in this letter to be your net revenue——

A. Yes, sir.

Q. Then you said to the council that that would represent 8 per cent upon a valuation of $1,739,894.

A. I would like to see that correspondence.

Q. All right sir.

A. In answer to your question I want to state that you incorrectly read this letter. This refers to $139,191.52 as the average annual net amount received by the company for interest and profits which amounts to 8 per cent on $1,739,894.

Q. Isn't that the way I read it?

A. No, sir. You read it on a valuation of that amount.

Q. No, that is my question, I didn't read it from the letter.

A. I thought you were reading it from the letter. I didn't state in this letter or at any time it was a valuation.

Q. Is that all you claim for it, that you didn't use the word "valuation"?

A. How do you mean?

Q. What did you expect the council to understand by these figures $1,739,000.

A. What any man would understand from reading this letter. I presumed they were intelligent enough to understand it as I wrote it.

Q. If your property was worth more at that time you didn't know it?

A. I stated it in the letter did I not?

Q. You said you thought it was in excess?

152 A. I said I believed it was.

Q. You had all the information in the world about it except a detailed invoice?

A. Yes, and I went on and suggested in the letter that I would have an inventory and valuation made and that the city council could appoint their engineer to co-operate with my men, get the advantage of all information they were collecting and that they could verify the statements I had made there by an examination of my books. That continues in the letter.

Q. You know at that time that the council and Mr. MacVicar did not have the information you had.

A. That is offered in here to give it to them.

Q. I say you knew it?

A. Certainly that is why I offered to give it to them.

Q. Suppose the city council and Mr. MacVicar had acted upon this letter and passed an ordinance permitting you to earn eight per cent upon $1,739,894, you would have understood that they believed that to be the value of your property wouldn't you, and that was what you intended for them to understand?

A. No, sir; it is not absolutely.

Q. If it was more, why didn't you say so, why didn't you give them figures?

A. I made that proposition to them with the offer that they should go into my books.

Q. Who wrote the letter?

A. I wrote the letter.

Q. Who dictated it?

A. I dictated it.

Q. Who took it down?

A. I think the girl in my office.

153 Q. What stenographer?

A. I think the girl in my office.

Q. Well did she?

A. One of them must have.

Q. Did your stenographer take that?
A. Absolutely.
Q. In your office?
A. Yes, sir.
Q. You have the notes up there?
A. I don't suppose so, have enough copies without.
Q. Did you dictate the petition in this case?
A. No, sir.
Q. Who dictated that *the* bill of complaint?
A. I suppose our counsel dictated it, I mean counsel for the company.
Q. Who was the counsel at that time?
A. Messrs. Carr and Read and Guernsey.
Q. At the time that petition or bill of complaint was drawn did you have any additional information with respect to this property over what you had when you wrote this letter?
A. Only in a general way. We hadn't completed our inventory at that time.
Q. When you wrote this letter Mr. Haines and gave these figures as figures that the council might rely upon anyway as being at least low enough for the value of this property, what idea did you have in your mind as to the value of the property, what did you take into consideration.

Objected to as immaterial, not proper cross examination, simply calling for an examination of the witness.

COURT: I hardly think that is competent cross examination, but we will take the answer.

Judge CARR: I make the further objection the question assumes a statement which is not true and if it is not true any evidence taken to show he assumed a figure as the value of the property, it is not so assumed at all in the letter.

COURT: I don't understand these letters are evidence of any facts stated there at all. They are not evidence of the facts stated in them and cannot be evidence of the facts at all.

Mr. BYERS: I understand that perfectly.

COURT: If they were evidence of the facts I would not hesitate a moment in saying that was cross examination.

A. As to the first part of the question there was not anything in the letter or in my mind nor no thought or effort to convey any valuation of the plant in submitting that figure of $1,739,000. That is fully explained in the letter, it is simply a question of ta-ing the earnings as they were on the books and as we offered to submit to an examination for verification by the council and dividing it by the percentage which had been allowed by the Master in Chancery in the water case and which the council was thoroughtly familiar with and by doing so we arrived at a certain sum that had no relation to the valuation of the property, was not referred to as the valuation of the property and I had at that time no way of getting what the valuation of the property was and therefore in the rest of the correspondence I made con-offers to the council to investigate and co-

operate with our engineers because I had not that information and I knew they could not get it and I wanted them to have it.

Q. Well now you have not answered the question at all.

A. Well I can't do it.

155 Q. You were in the management and control of this business in 1906 were you not?

A. Yes, sir.

Q. Was that the date of the reorganization, the year of the reorganization?

A. The organization of the Des Moines Gas Company was in 1906 yes.

Q. What was the name of the corporation before 1906?

A. The property belonged to the Capital City Gas Light Company.

Q. What was the Capital City Gas Light Company?

A. A corporation organized under the laws of the state of Iowa.

Q. Did it have any relation to this United Gas & Improvement Company?

A. Part of its stock or all of it, I presume was owned by the United Gas Improvement Company.

Q. Is the record of the reorganization up there in your office?

A. You mean the minute books.

Q. Yes.

A. Why yes I suppose they are now.

Q. What became of the property of the Capital City Gas Light Company?

A. It was purchased by the Des Moines Gas Company.

Q. At what price?

Objected to as not proper cross examination, immaterial and incompetent.

A. I don't know without referring to the minute book, I can't give the figures.

Q. Well you had them at your elbow when you wrote this letter didn't you?

A. No, I did not.

Q. Where were you when you wrote this letter?

A. In my office.

156 Q. Where was this information?

A. I presume it was in Philadelphia at that time.

Q. It is here now is it?

A. I believe it is here now, yes.

Q. And so you knew nothing about it at that time?

A. About what.

Q. The price at which the property was taken over.

A. I had heard and in a general way was familiar with it. I had no authority in it, it was merely——

Q. Who closed up the books of the Capital City Gas Light Company?

A. I presume the auditors did at that time, the auditors of the company.

Q. Didn't you have anything to do with it at all?

A. Not personally no.

Q. Was it done over there in your office?

A. Yes, sir.

Q. Can you tell us now about what this property was put in in 1906?

Objected to as being immaterial and not proper cross examination.

A. No, sir.

Mr. BYERS: I would like to have you get the information for me and furnish it to us in the morning if you can, furnish the minute book showing the proceedings covering the transfer of the property of the Capital City Gas Light Company to the Des Moines Gas Company, or United Gas & Improvement Company which ever the transfer was made to and the reports, the monthly reports for November—beginning say with September, October, November and December of 1910?

Judge CARR: We insist most earnestly that these two items of evidence called for are not cross examination of this witness.
157 If they are proper items of evidence, they may be obtained in a proper way on a proper showing, but they are not cross examination either one of them of any matter gone into in the remotest degree by this witness and therefore unless the Master so orders we don't want to come down here with a lot of matters inquired for that we do not regard as cross examination, but if your honor thinks they are and we should produce these things we will.

COURT: I have not any question about these things being proper at the proper time. The only question in my mind is about when what time they become competent and under what circumstances.

Mr. BYERS: We will stand upon the record just now as it is and they do not produce then we will ask for a rule.

Here the further hearing was adjourned until 9.30 A. M. tomorrow.

158 FRIDAY, *July* 14, 1911.

Convened at 9:30 A. M.

All counsel for respective parties present.

Testimony on the part of complainant resumed as follows:

The MASTER: Before beginning I want to ask a question. Was Mr. Haines asked the question as to the total receipts and expenditures for the past three years?

Judge CARR: No, sir; he was not asked anything as to expenditures or receipts or as to values. His evidence was confined entirely to a general statement of the property owned by the Company.

Mr. BYERS: We did not go into that.

The MASTER: With reference to these papers last night, I haven't any question but what you are entitled to investigate all that pertain to the receipts and expenditures and values, etc., and it is the duty of the complainant here to produce them.

Judge CARR: I might say in regard to that, some days ago Mr. Brennan asked for arrangements to be made for an expert accountant on behalf of the city to come to the office and examine records, and asked that a room be prepared without interference and annoyance of the Gas Company and we notified Mr. Brennan on Monday of this week that we had such a room prepared for him.

Mr. BRENNAN: I want to say that Mr. Hall, our expert accountant was delayed and I forgot to tell you about it.

159 THE MASTER: You are asking now that these accounts may be investigated. You can produce anything bearing on that question.

MR. BYERS: Of course the court understands, and Judge Carr does, too, the situation of the city. Now, the books of accounts and information necessary to arrive at a fair judgment about the value of the property, the character of the business and a reasonable rate, that information is peculiarly within the control and under the supervision of the witness. Now, on this preliminary examination of the President of this company, even though it is on cross examination, I have thought it entirely proper to ascertain just what documents we ought to examine and what documents and papers have been kept in connection with the business.

The MASTER: That is all proper enough. You are entitled to them some time or other; as to that I have no question at all.

Mr. BYERS: Of course, another purpose—I ought to be frank enough to state it now—another purpose of pressing this witness on these documents and detailed information was to meet the alleged charge on inference that may be drawn from the character of the testimony Judge Carr introduced yesterday with respect to these communications.

The MASTER: I suppose these papers will be produced without the necessity of any order.

Judge CARR: If they ask for an investigation of any records that we do not think it is proper for them to investigate then it may become a question for your Honor to pass upon. Whatever records we have that show the expenses and receipts that go into the accounts, of the figures that go into our bill, that your Honor will

160 want us to produce, it has been our attitude from the start to give the city a full opportunity for an examination. We thought we ought to have the right to try our case in what we thought an orderly way and that the other side have no right under the guise of cross-examination to change the order of proof.

The MASTER: I do not expect to pass upon the matter of cross examination. So far as that is concerned I will let the record be made. I expect to continue that on both sides. I know there were several questions I thought were improper, but as they went on, I saw their relevancy as proper cross examination.

JANSEN HAINES, re-called for further cross examination. Examined by Mr. Byers, and testified as follows:

Q. Just briefly, Mr. Haines, about your testimony of the desirability of the location of this property on the east side, among other

things in your responses was the statement that the Belt Line furnishes cars without charge. What is the Belt Line?

A. What I mean by the Belt Line?

Q. Tell me now what is the belt line.

A. What I meant by the Belt Line, is the Des Moines Union Railway.

Q. That is what you meant? The road you referred to was the Des Moines Union?

A. Ordinarily known as the Belt Line here.

Q. Where is its trackage with respect to your property?

A. Its track is about a half a block north of the Rock
161 Island track, but it has the switching arrangements with the other roads there; it switches the cars of all the other roads.

Q. And uses the other roads' tracks?

A. It uses its own yards and the other roads' tracks.

Q. That is to say, if a tank of oil was to be shipped to you over the M. & St. L. road, it would be delivered at the plant by the Des Moines Union?

A. No, that is not correct.

Q. Tell us how it would be?

A. We do not get tank cars by the M. & St. L., but if we did it would be delivered to the yards of the Des Moines Union Railway and they would switch it to the Rock Island and it would be delivered on our siding or the siding adjacent to our works by the Rock Island switching engine.

Q. And the Des Moines Union would perform that service without charge to your company?

A. Yes, sir.

Q. Did you make that statement for the purpose of showing the value of the location of the plant there because of that facility being furnished *being furnished* without charge; was that your idea?

A. I think that makes for value.

Q. Who made that arrangement with the Des Moines Union?

A. What arrangement do you mean?

Q. That you referred to having delivered the cars of material and supplies to your plant without charge to the plant?

A. I don't know.

Q. When was it made?

A. Why it is a matter of common knowledge, but the details of it I don't know. It is regularly known by all shippers of car
162 lots here in Des Moines. I have always understood it to be so.

Q. That wouldn't furnish us the information that shippers generally know it; is it a general arrangement with all the shippers?

A. With all the railroads.

Q. Then there is no difference between your plant with respect to this service and any other plant in Des Moines?

A. There is this difference, as I understand it: that if we were located on one of those roads without these facilities, that there could be an extra charge of two dollars a car for handling the cars on our siding.

Q. You mean some particular roads entering Des Moines?

A. Yes.

Q. Are there some roads entering Des Moines that are not furnished this service by the Des Moines Union?

A. That is my understanding.

Q. Then it is a matter of contract between your company and certain railroads and this Des Moines Union?

A. It is not a matter of contract between our company and any railroads that I am aware of. The contract as I understand it, is between the railroads. What the terms of the contract are, naturally I am not familiar with.

Q. Well, if a car load of oil is shipped over the Northwestern Railroad, how do you get it?

A. I believe that is handled through the Des Moines Union yards the same way. But of course we are not interested in the matter. In buying the oil we do not have to pay an additional switching charge, which I understand some plants in Des Moines do have to pay for car lots received.

Q. That is to say, this Des Moines Union serves your company without compensation and charges other local plants switching
163 charges for the same kind of shipments?

A. That is correct. The switching charge as I understand it is made, but it is absorbed on the road on which shipments enter Des Moines.

Q. What I want to get at, is just what you claim for this statement that you receive service in transportation that don't cost you anything and therefore it made your plant that much more value.

A. Haven't I so stated it?

Q. Is that all there is to it?

A. I think the evidence covers it, as far as I know.

Q. Now, the Northwestern does not reach your yards?

A. No.

Q. The Milwaukee does not reach your plant?

A. No.

Q. The M. & St. L. does not reach your plant?

A. I don't know whether the M. & St. L. does or not under some trackage agreement between the Keokuk & Des Moines.

Q. It has no track of its own that approaches your plant?

A. No, but the K. D. cuts through one of the streets that goes through our property and there has been a general understanding that they are operating under a lease or contract with the M. & St. L.

Q. The Chicago, Milwaukee & St. Paul does not reach your plant?

A. You just asked me that and I said no.

Q. The Illinois Central does not reach your plant?

A. No.

Q. Does the Burlington reach your plant?

A. Yes, the Burlington line through Des Moines really cuts through the south part of our property.

Q. Now, Mr. Haines, let us see if we can get at the advan-
164 tage that comes to your plant by reason of the service of the Des Moines Union. If a car load of coke, for instance, is

shipped from Milwaukee to Des Moines over the Chicago, Milwaukee & St. Paul Railway, the freight is charged to what point?

A. In the first place we do not buy coal in Milwaukee; we buy coke.

Q. I said coke.

A. Pardon me. If that is shipped to us we pay the freight at the tariff rate from Milwaukee to Des Moines and the car is ultimately placed on our siding or the siding adjoining our plant.

Q. Now, that car of coke would be delivered by the Milwaukee Railroad where, in Des Moines?

A. You will have to ask the Milwaukee people to tell you that. I am not familiar with their trackage system.

Q. You ship a great deal over their road?

A. Certainly. I said they are delivered on the siding at our plant. It is delivered there, I should say. It is delivered so far as the freight paid to them is concerned, we pay the freight bill to the Milwaukee road and the car arrives at our siding at the plant.

Q. Who delivers it at your siding of your plant; what transportation company delivers it to you?

A. The Rock Island or Des Moines Union switch engines deliver it at the plant there.

Q. Does this Belt Line you refer to have anything to do with it?

A. Yes, sir.

Q. That was your understanding you had in your mind when you gave this answer?

A. Yes, sir.

Q. Another advantage you suggested was that it was above flood line. Now that is due entirely to a fill that had been made
165 there by the Company itself?

A. Well, as I stated yesterday, the ground has been higher, the flood line, practically all the time since I have been in Des Moines.

Q. All the ground you describe here belonging to your Company?

A. No, the part on which the vital part of our plant is situated.

Q. Right around the main plant the ground is higher and it is filled four or five feet?

A. Block- B and C, what I referred to, the vital part of our plant which were protected as being above the flood line.

Q. That is all because of an artificial fill?

A. It is partly so, but what the original levels of the ground were I cannot state, because I was not here many years ago.

Q. How many miles of main are there in connection with the Valley Junction service?

A. Approximately six or seven miles, I think.

Q. Is that included in your 182 miles?

A. No, sir.

Q. That was separate?

A. That was separate.

Q. How many street mains do you have in Valley Junction, or connections, or street mains?

Objected to on part of the complainant as not proper cross examination.

Q. I mean that is served now by this plant over here.

A. Let me understand your question please. May I ask whether you mean street mains or services?

Q. Street mains.

A. Just about six or seven miles in Valley Junction.

Q. Does that include the mileage from Des Moines to Valley Junction?

A. No, sir.

Q. How much is there of that?

166 A. About five or six miles. That main also serves consumers in Des Moines all the way out.

Q. Exactly. There is then, if I understand you, about eleven miles of main that makes the main service connection between the plant here on the east side of the river to the town or city of Valley Junction?

A. That is not correct; because the mains between here and Valley Junction supply a number of consumers on its own route.

Q. I understand that. You get your gas to Valley Junction through a main about eleven miles long, four or five miles of it within the city of Des Moines and five or six of it outside of the city?

A. The five or six outside of the city I have not included in the 182 miles, but the 182 miles does include the mains laid in Des Moines.

Q. Am I right in the statement just made?

A. My answer is correct, if it answers your question.

Q. About the service connections in Valley Junction, or about eleven miles from this plant?

A. No, sir; there are about six miles from this plant.

Q. That then is the distance from the plant to the farthest point that your main runs in Valley Junction, is that right?

A. It is about that. Yes, the map will show it right there before you, I think it is six or seven miles.

Q. What is the annual amount of gas furnished the Valley Junction end of your plant?

Objected to on part of the complainant as not proper cross examination and immaterial.

Mr. BYERS: To avoid any possibility of that objection being good, I will change the question.

167 Q. What part of this two and one quarter million or this five million capacity that you talked about yesterday is kept or served to Valley Junction?

A. I should say about one to one and a half per cent possibly.

Q. Give it to me in cubic feet?

A. In the capacity?

Q. The amount you furnish?

A. We sell about seven million feet of gas a year in Valley Junc-

tion out of about five hundred and thirty odd million feet, including Des Moines, which is a little more than one per cent.

Q. How many service connections do you have in the Valley Junction line?

Objected to on part of complainants as immaterial and not cross examination.

A. Let me first understand what you mean by Valley Junction line.

Q. Is there any difference between the Valley Junction line and the plant, except that it extends beyond the territorial limits of the city—I refer to the service in Valley Junction and outside of the city of Des Moines?

A. Your question is too hard to answer; it is too involved.

Q. Well, let me get the complication out—this plant over here serves both Des Moines and Valley Junction?

A. Yes, sir.

Q. You have no separate or independent plant in Valley Junction?

A. No, sir.

Q. Whatever gas is served to Valley Junction is made in the plant over here on the east side?

A. Yes, sir.

Q. It is made in the machinery you say has a capacity of about five million cubic feet?

168 A. Yes, sir; that capacity includes several machines.

Q. Now, then, how many service connections do you have on the Valley Junction line outside of Des Moines?

A. Will you pardon my making a little technical change in your question. Isn't the question you mean, how many service connections have we to our main system in Valley Junction?

Q. Well, answer it that way.

A. We have, I think, about five hundred; but I don't know the exact number off-hand; about five hundred and forty, I think.

Q. It would be fair to say somewhere between five hundred and five hundred and fifty?

A. I think that would be correct.

Q. How many meters do you have?

A. Approximately the same.

Q. And the Valley Junction service and everything pertaining to it so far as the business end of it is concerned is carried on from the general office here in the city of Des Moines?

A. No, that is not correct. We have an office in Valley Junction which handles the receipts from the sales of goods and supplies customers there with fixtures and what we term sundry sales.

Q. That is a mere branch of this office; you furnish from this office all the supplies?

A. Yes, sir; it is simply a branch office.

Q. You say the daily capacity of the plant is five million cubic feet?

A. Yes, the total daily capacity of the manufacturing plant is five million cubic feet.

Q. Now what would be necessary—could you make five million cubic feet tomorrow over there?

A. I think we could, yes sir.

Q. Are all the machines over there ready for gas making right now?

169 A. Well, it simply means the question of starting up the engines and blowers of the plant.

Q. Has it ever been run to its full capacity?

A. There has never been any occasion to run to the full capacity.

Q. You have been here about eight years?

A. Yes.

Q. There never has been a time when it was run to anywhere near the capacity of five million cubic feet?

A. Now, let me explain what I mean by the capacity of the plant, if that is competent.

Q. Just answer this question.

A. Yes, it was run during the winter month, it was run to approximately half of that capacity.

Q. What is the greatest number of cubic feet of gas that was ever made since you have been here, in that plant in one day?

A. About two and a half million feet; but the additional capacity of course is for reserve in case of break-down, as I have explained before.

Q. Now, two and a half million you say has been manufactured over there upon some particular day within the last year?

A. Approximately so.

Q. What do you mean by approximately so?

A. Put it in this way: Our maximum delivery of gas from the works last winter was 2,228,000 feet. The operation of our manufacture is continuous and we cannot make just that much gas and stop; so that we have to make a little more or less, whatever it happens to be each day, than the amount actually sent out during that day. That is the reason, I say we have manufactured approximately two and a half million feet, but just exactly what that is I should have to go back over each daily record to see.

Q. What I am trying to get at is the greatest amount that
170 has been made in that plant upon any given day since you have been here.

A. Well, the greatest demand upon the plant does not necessarily follow that *that* the amount is sent out.

Q. I mean the amount actually furnished?

A. The amount of gas delivered was 2,228,000, but it is frequently necessary to make more.

Q. Do you mean delivered to consumers or delivered to the holder over here?

A. No, I mean delivered to the consumers through the distribution system for consumption from the holders.

Q. What was the greatest amount ever delivered to the holders?

A. I can't answer that. It is measured, but I don't keep that in mind.

Q. It is measured and the amount recorded in the books every day?

A. Oh, yes; every day.

Q. And the amount that goes out to consumers is measured and tested every day?

A. The amount that goes out to consumers is the amount that interests me; the other does not.

Q. That is, what you might term over-supply or waste, doesn't concern you?

A. We have not discussed over-supply or waste; what do you mean by that?

Q. Don't you know what I mean by that. If you were to make three million cubic feet of gas when you only needed two million, you would simply carry the other over to the next day?

A. That is the idea; then we make less the next day.

Q. So you are only concerned in the amount that goes to the consumer.

A. That is what I had reference to.

171 Q. Is there any difference between the amount delivered to the consumer at his meter and the amount that leaves your station meter?

A. Yes, sir; of course there is.

Q. That would be waste?

A. That is due to leakage or condemnation in the mains.

Q. You don't get any pay for that?

A. No, we don't get any pay for it.

Q. What is the size and capacity of the water gas generators over here?

A. We have what is known as two six foot sets or units, with a capacity of about three hundred thousand cubic feet each. Then we have two eight foot six sets or units with a capacity of about 1,200,000 cubic feet per day each, and these are in duplicate, so that in case of interruption of the service by breakage or necessary shut down for repairs we will be provided with capacity in our reserve apparatus against that shut down. Now last year having exceeded the safe capacity of our reserve apparatus, we erected an additional larger unit, ten foot six, standard size, with 2,000,000 capacity, and we are now so situated that we have sufficient manufacturing capacity with our largest unit down for repairs, and that largest unit when it is in operation is of sufficient size to take care of our ordinary and normal demand and allow us to suspend the operations of the other sets which are naturally less economical in operation than the largest units.

Q. In other words, with your plant as now constructed you can serve all of the consumers that you have by running your plant at about one-half its capacity?

A. Yes, sir; that is correct.

Q. How long has that been so?

172 A. Some time last year; I have forgotten exactly the date.

Q. Give us the date as near as you can?

A. I think the date was in that inventory. It was installed in 1909.

Q. As I understand your answer, Mr. Haines, when your largest unit over there, the one with a capacity, as I understood you to say, of about two million is out of order, you can serve the consumers of the Gas Company very readily with the balance of the plant?

A. That is our idea. That is the reason for it and that is why it is so.

Q. Now Exhibit 7, Mr. Haines, which is one of the communications to Mr. MacVicar of date November 22, in that you say that the gross revenue from the sale of gas for twelve months ended September 30th, 1908, was $457,105.95; did that include gas sold to Valley Junction?

A. I really forget, Gen. Byers; we got up those figures in the office and they will show on our books whether it did or not. It was such a small percentage that I am not sure whether I included it or neglected it; it would amount to about one and one-half per cent.

Q. You say for September 30, 1910 it was $526,293.50; I suppose the same answer will apply to that?

A. The same answer.

Q. You say for the twelve months ended September 30, 1908, the operating expenses and taxes were $281,613.48; now what expenses were included in that item?

A. Well, if the Valley Junction receipts were left out of it, they would be left out of it too.

Q. Do you have any recollection about it?

A. I don't recollect that.

173 Q. Do you keep a separate set of books in your office for the expenses for Valley Junction and a separate set for Des Moines?

A. No, we keep one record of all.

Q. And the officers and employés of the Des Moines Gas Company here at Des Moines who serve the end that goes to Valley Junction, that expense is all included in your general expense account here, isn't it?

A. Yes, it is all provided for.

Q. And the probability is it is included in these figures, is it not?

Objected to on part of complainant as being improper cross examination.

Q. What will you say about this expense item for the three year period ended September 30th, 1910, $303,411.66; what does that include?

A. Well, the items will all be shown on our books. I do not carry those figures in my head and cannot possibly do it.

Q. Can't you tell me in a general way what it covers?

A. It covers the same form of classification and expenses as shown on our books.

Q. Can you give me in a general way what they are as shown on your books.

A. The books show for themselves.

Q. That is the only answer you can make?

A. That is the best answer, yes sir.

Q. Is there anything charged to depreciation in these operating expenses?

A. The books will show.

Q. Do you know whether there is?

A. No, sir.

Q. Not in your operating expenses?

174 A. No.

Q. You say in this letter that there must be deducted for depreciation the sum of $49,178.13; does that item appear on your books anywhere?

A. No, sir.

Q. Does any similar item appear on the books anywhere since you have been running the Gas Company in Des Moines?

A. No, sir. That was taken from the Wilcox case in New York, as applicable to our situation here.

Q. You thought your case and the Wilcox case was so near alike that you could make the same depreciation charge here?

A. There are some elements of similarity.

Q. You wouldn't want to stand for the same thing as to rates?

A. I haven't been asked to.

Q. Has the Company since you have been in the management of it, been making any charge on the books at all for depreciation?

A. It started to for some specific items a few years ago.

Q. How long ago?

A. About two or three years ago.

Q. It had not, however, up to that time had any such account?

A. No.

Q. Give us as near as you can the time when it began to do that?

A. Well these items covered minor depreciation, on small items, simply specific items.

Q. What was the character of it?

A. They were of the automobile expenses, the engineer's automobile.

Q. Well, anything else, any other item?

A. And on the motor cycles used for our men, just includes motor cycles and automobiles. I think those were the only things charges off specifically, except the stable equipment.

175 Q. Now out of what fund have you been paying the general repairs of the plant?

A. What do you mean by fund?

Q. To what account or fund would you charge up your general repairs?

Objected to on part of the complainant as not proper cross examination.

Q. I am trying to get at now as near as I can to something about these items you put here in this letter.

A. The general repair items are, repairs to machinery are charged according to the standard classification of accounts against the various accounts, manufacturing or distribution. But it is not customary and never has been customary to charge specifically depreciation on their books, excepting in a very few instances.

Q. When you put the addition on the office over here a year or two ago, what account did you charge that to?

A. That was a property account. I have forgotten the name of the account. When we make an improvement of that kind a special account is opened for it and is kept in that account.

The MASTER: You mean by betterment an addition to the value of the property?

A. We distinguish between betterments and improvements in our classification of accounts.

Q. Let us take this one item here and see if we can get any information out of it: On September 30th, 1910, you say the operating expenses were $345,288.43; what is the largest item included in that sum total?

Objected to on part of the complainant as not proper cross examination; the witness did not in his testimony in chief go into this matter at all, and the propriety or impropriety of taking
176 the time for this—I want to call your Honor's attention, there is now at this moment an expert accountant going over the accounts which of course later in this case will go into this matter fully. I don't see why we should go into this matter with Mr. Haines.

Mr. BYERS: When you had this letter identified and offered and read it into the record, not only once but twice, was it your purpose to give these figures standing in this court?

Judge CARR: It was my purpose to do just what I did do.

Last question repeated to the witness.

A. Well, it would be impossible for me to answer that without looking at the books.

Q. Every single item of repairs of the plant for that year, and during that period is included in that general sum, isn't it?

A. It should be, yes sir.

Q. And if there was any reconstruction of buildings or any additions to any of the buildings over there it would be included in that sum?

A. Absolutely not, no sir.

Q. Where would it appear?

A. It don't appear in that statement at all; it was not expected to appear there; that has nothing to do with the improvements and extensions of the plant. It does not so state in the letter.

Q. I don't so claim it. I am simply trying to find out what you covered in that item. What else besides repairs in connection with the plant did you include in the item?

A. All the operating expenses, including taxes.

Q. And the salaries of officers, assistants, helpers and employés?

A. All which were properly charged against operating im-
177 provements but not those charged to improvements or betterments.

Q. Now, in this item was included the taxes for the company, the entire tax of the Company here in Des Moines?

A. In Des Moines, Yes sir.

Q. All that they were required to pay is included in that item.

A. Yes, sir.

Q. If you will just tell the Master what you consider properly chargeable to operating expenses, that will end this examination so far as I am concerned; you have used that term two or three times.

A. If your Honor, please, there is a very long list of items entering into the operating expenses, a great many materials that are used, and I cannot enumerate all of them, but perhaps the principal ones, and as many as I can recall of the others. But I don't think I can remember them all.

The MASTER: You could not be expected to remember the items.

A. The manufacturing materials and the labor used in manufacturing——

The MASTER: You mean by that the coke and coal?

A. I mean such principal items as oil, coke, coal, water and such minor items as waste and little repair items, and the tools that enter into repairs, and the labor of operating our machines, unloading our coal and coke, unloading our oil, and cleaning up around the works and the labor of repairs, and all the labor and material which is not used for the construction of improvements or betterment to the property. Then in our distribution department all the labor and material used in repairing mains, meters and services, but none of the labor or material which is used for extensions of mains or betterment of mains or meters or services. In our meter
178 department the labor and material necessary to remove and repair, shut off and turn on the meters and test the meters and tag the meters—each meter is tested and a number placed on it, tested and tagged before it is sent out—and all the labor and material in connection with that, but not labor and material used in setting the meter the first time, because that is an improvement or betterment, and after it has been once set and brought back then it becomes an operating expense. In our office all the clerical hire, the salaries of our officers and employés employed in keeping the books and records of the Company, accountants, and the usual office supplies of stationery and advertising, and in this statement we have the balance of either profit or loss from the sales of our sundry supplies, which is kept in a separate table. If at the end of the year that business showed a profit, the profit is deducted from our operating expenses; if it shows a loss, it is added to our expense. As a matter of fact, the profit or loss is about one-half of one per cent one way or the other—just about breaks even. So that this statement includes only the operating expenses of the Company and has nothing to do with the extensions or improvements or betterments. Now, all the labor and material in this sundry department, stoves, fixtures, lamps and mantles, all the labor and material is kept in separate accounts and the men's salaries are kept on time cards. Every item they use is taken out on written orders and the entry is made on the books from these orders. All the material received in that account goes into the store room, and is charged to the store room and when

it is taken out by these men it is withdrawn from the storeroom and all the labor in connection with that—if you order a stove set,
179 his time is kept separate on a time card and is charged to one of the sub-accounts under that head. If that sale of that stove shows a profit at the end of the year, that profit is deducted from our operating expenses. As I said before, that business amounts to about $60,000 or $70,000 a year, but it practically washes itself.

Q. Is there rental in that expense account?

A. The rental of the office and rental of the shop and ware house which we have near the works. The rental of the office is partly charged to operating expenses and partly is charged to this account of sundry sales, but is not charged to any construction account or betterment account, and of course it becomes in that way an operating expense.

The MASTER: Do you mean you have a separate office at the works?

A. We have a main up town office, where we have the sundry sales business of stoves and fixtures, and then we have at the works rented a shop, three story building and basement, where our meter testing department is and where we store our small pipes, fixtures and supplies.

The MASTER: That is what you refer to as rental?

A. Yes, sir.

Q. And your main office?

A. Yes, sir.

Q. I suppose it includes all the salaries of the general officers?

A. Yes, sir.

Q. And no separation as to Valley Junction end?

A. I think in that statement we include the Valley Junction end but the expense of the Valley Junction local office is simply kept as a part of our office expense but on separate accounts.

180 Q. Well, if an accountant for the defendants in this case was to go to your office now for the purpose of ascertaining accurately the operating expenses of the plant in Des Moines alone, he couldn't do it, could he?

A. I believe he could do it within probably one one-hundredth of one per cent.

Q. He couldn't do it without resorting to some percentage plan, could he?

A. He could do it in this way: he could take the average cost per thousand cubic feet of gas supplied in the whole situation and proportion the cost of that to Valley Junction, which was used in Valley Junction and the portion used in Des Moines. The difference is so slight in percentage. It is about ninety-eight per cent to Des Moines; it wouldn't make any material difference in our earnings.

Q. Whether it makes any difference or not, there is no way to ascertain, except to refer to some percentage plan?

A. By properly proportioning it.

Q. Do you keep a separate improvement account?

A. Yes, sir; for the cost of the labor and material used for improvements.

Q. Do you keep a capital account?

A. Yes.

Q. And an administration account?

A. Well I don't understand what you mean exactly by administration account. We have a very elaborate system of classified accounts to which all these various items are charged as accurately as they can be subdivided, and these accounts will speak for themselves. The classification of these accounts is in quite a large sized volume nearly as large as one-half of this inventory. That classifi-
181 cation is so kept as to carefully subdivide all these accounts and see that the charges are accurately and consistently made.

The MASTER: Is that done for the purpose of determining whether on a particular part of the business you are losing or earning money?

A. Yes, sir.

Q. When did you commence that system Mr. Haines?

A. I don't remember the exact date. The system which we use is what is known as the classified system of accounting, adopted by the American Gas Light Association, and the American Gas Institute later.

Q. Just after the Wilcox suit?

A. O, no; long before that.

Q. How long before?

A. Several years before, I believe. That is my understanding of it. The present form of classification is naturally an evolution in bookkeeping. It is a system which has been in cintemplation for many years by the association and was developed by them several years ago; and there have been certain additions from time to time, and amendments to it for the purpose of developing the accuracy of the system.

Q. Didn't that system include a depreciation account?

A. I don't think the depreciation account has been added specifically to it in recent years, but the classification we use does not contemplate the use of that.

—. You told me yesterday you would ascertain from the copy that you kept of your statement of the value of this property that you gave to the assessor in 1908; did you ascertain that?

Objected to on the part of complainant as not proper
182 cross examination; the witness not having been interrogated on the subject of values and it is clearly not cross examination. Besides it is incompetent. The return made to the city, whatever it is, speaks for itself.

A. I did not ascertain it. But the assessor never used the figure; he assessed us about one half the value that was given at that time.

Q. I didn't ask you that. Did you find the copy of a statement that you made?

A. No sir, I didn't look for it.

Q. You told Judge Carr when you came here the property was in excellent condition, is that correct or did your answer go to the present?

Judge CARR: I want to correct counsel. He did not tell me that. I didn't ask him any such question. My inquiry as to the condition of the property was directed to the present time.

Q. Well, how was it when you came here then?

Objected to on the part of complainant as immaterial and not proper cross examination.

A. You mean its general condition?
Q. Yes.
A. I should say it was below the average at that time.
Q. That was in 1903 you came here?
A. Yes, sir.
Q. Since then you have brought it up to its present excellent condition, as you state.
A. I have used every effort to.
Q. And out of the proceeds of the Des Moines business?
A. What do you mean by that?

183 Q. Well the receipts from the business in Des Moines.

A. I have used some of the receipts from Des Moines, but very largely the money furnished by the United Gas & Improvement Company of Philadelphia for that purpose.

Q. Did you make any further examination with respect to the property on the east side, the two alleys that you said were vacated to ascertain whether the Company owned that ground or not?
A. Why, yes sir I did.
Q. What did you find?
A. I found roll call 1551 in the year 1907, which is on the record.
Q. That was the roll call vacating the alleys?
A. That is the only one I found.
Q. That is the only thing you claim any right to these alleys on?
A. No, sir.
Q. What else?
A. I don't know but we couldn't base it on that as the only claim.
Q. Have you any conveyance to that ground?
A. I don't know whether there is anything in addition to that or not.
Q. Haven't you had anybody examine the records for you to ascertain?
A. No.
Q. You may examine defendants' Exhibit No. 1, Mr. Haines and state whether that is the statement you referred to as having made in 1908, which you said was a perfunctory statement.

Objected to on the part of complainant as not proper cross examination.

A. This is the statement which was filed for the assessor

184 to place a value on the property, and I believe was made up from the previous assessment.

Q. Is that your signature attached there?
A. My signature is not on that, no sir.
Q. You furnished the original of that statement, did you?

Objected to on the part of complainant as not proper cross examination, incompetent and immaterial.

A. I furnished the original—how do you mean?
Q. To which that is a duplicate and swore to it, didn't you?

Complainant interposes the same objection as last above made.

A. That is the statement as I understand it.
Q. Did you examine that closely to see if your signature was not there—who wrote Jansen Haines' name there under that statement in the middle of that paper?
A. Oh, I wrote that.
Q. That is your signature?
A. Yes, sir.
Q. That refreshes your recollection now that you furnished the statement?
A. Oh, I never denied that I furnished the statement. I didn't swear to the statement down here; I thought that was what you referred to. I delivered that to Charley Schramm.
Q. You swore to the statement above?

Objected to on part of complainant as immaterial, not proper cross examination and incompetent.

Q. At the time you signed this statement and swore to it were the items and figures included in the exhibit above the statement where your signature appears, on the paper at the time?
A. Yes, this was signed when the statement was filed with
185 the assessor.
Q. That is, the statement was complete at the time you signed it and swore to it; the statement as to the property and its value?

Complainant interposes the same objection as last above and because this witness has not yet stated that he swore to that statement.

Mr. Byers: It shows it was sworn to.

(Last above question repeated.)
A. Well, it was complete as far as any figures on it were concerned.
Q. I mean this paper, as it appears now, with the figures and all was filled out and completed at the time you subscribed your name?
A. Yes, sir.
Q. Now did you swear to it?
A. I don't remember whether I took the oath or not. I think I did not, and that Charley added on that and assumed I had. But if I did not, I don't think it makes any difference.
Q. It was correct anyhow?
A. I don't say it was correct; it was correct as far as my information went at that time.
Q. What was you furnishing the statement for?
A. Presumably for the assessor to fix the assessment of the property, and he never did it.

Q. You understood too, that you were furnishing under the law of this state the sworn statement of the value of the Company's property?

Objected to on part of the complainant as not proper cross examination, incompetent, immaterial and calling for a conclusion.

A. Only in so far as I would judge its value at that time; that is what information I had to give.

186 Q. You know at that time, too, under the law of this state it was your special duty to furnish that information and to furnish it under oath?

Objected to on part of the complainant for the same reason as last above.

A. Only when I had the information. I could only give what information I had. I have already stated I had no inventory at that time.

Q. Who is W. B. Koffer?

A. He is at present assistant secretary and assistant Treasurer of the Des Moines Gas Company.

Q. Who was he at that time?

A. I think he was the same at that time. I don't think there has been any change in his title since. You mean January 1, 1908?

Q. Yes. Where is he now?

A. I don't know. He has been ill for six months and been away most of the time.

Q. Well, this statement was correct, was it not; authorized capital $2,250,000.

Objected to on part of the complainant as not proper cross examination, immaterial and not the best evidence.

The MASTER: Seems to me we are getting out a good ways.

Mr. BYERS: I am testing the accuracy of this witness.

Judge CARR: On something he has not said on direct examination at all.

(Last above question repeated.)

A. The articles of incorporation will show; if they show that amount, that is correct.

Q. Where did you get the amount when you put it in here?

Complainant interposes the same objection as last above.

187 A. I didn't put it in here.

Q. Was this statement correct: This stock is not worth par; the value of the capital stock is not in excess of the value of the property as assessed. Was that statement true when you write it in this paper?

Complainant interposes same objection as last above.

A. As far as my knowledge went at that time.

Q. And the property was assessed at that time on the valuation that was furnished in this paper, was it not?

A. Why I don't understand exactly what you mean by that.

Q. When you wrote that statement on there, what valuation did you have in your mind, what were you referring to?

Complainant interposes same objection as last above.

A. Referring to the method of assessing the property of the Des Moines Gas Company under the statute.

Q. The value of the property the figures furnished here, was $1,020,000. Was that the amount that you say in this statement that the capital stock was not worth to exceed that?

Complainant interposes the same objection as last above.

A. I really don't recall what I meant at that time, if the statement does not speak for itself; I don't know that I can recall very much about that.

Q. Just look at it and explain what you meant by that statement?

A. What I meant by this statement was to give to the assessor the information called for in the statute.

Q. I am now referring to the statement you wrote in the paper yourself under your signature; what did you mean by that?

Complainant interposes same objection as last above.

A. I don't know that I had a very clear meaning of that; Charley Schramm wrote it and asked me to sign it and I didn't see
188 anything objectionable and signed it.

Q. Do you mean to say to the Master you don't know what you swore to? What do you think now it refers to?

Objected to on part of complainant as immaterial.

A. I don't think either he or I could tell what it refers to now.

Redirect examination by Judge CARR:

Q. You were asked with respect to the amount of gas manufactured at your plant in Des Moines which was furnished to Valley Junction. I think you stated to Gen. Byers that it was somewhere about one per cent of the entire output. I want to inquire whether when you began supplying Valley Junction, or during any of the time that you have supplied Valley Junction, it required any increase in your capacity to manufacture, or affected the situation at all so far as your capacity was concerned?

A. Well in answer to that I would say, that the daily send-out and the capacity necessary to manufacture and supply it, fluctuates so much that the additional gas consumed in Valley Junction would not require any *de*preciable difference whatever in the capacity. In other words, our daily send-out or daily consumption of gas, fluctuates very much more than one per cent, fluctuates probably thirty or forty per cent at times, and we would have to have sufficient capacity to meet the maximum of that fluctuation, and the daily fluctuation in the daily send-out is even more than it is in the monthly or yearly send-out. That is to say, that in the evening, for the hours from about six, or when the sun goes down until the people go to bed and turn the light out, is our largest period of

demand for gas during the day, and that hourly demand is
189 greater than the demand during the early morning or the period between breakfast and dinner, or after dinner, and that variation is—well it fluctuates from one hundred per cent maximum to probably ten per cent at the minimum; so that the additional capacity required to supply Valley Junction would be a negligible quantity.

Q. Now, in speaking of the extra or reserve capacity of your plant you referred in your cross examination to the machinery for *for* manufacturing or the generating process; what can you say as to the capacity of your plant in other respects, so far as holders and distribution, etc., and the mechanism that goes with that are concerned?

A. The various component parts of our manufacturing plant have to balance each other. In other words, if our storage capacity is low, or if our capacity for storing the gas is relatively small in proportion to the amount of gas used in the twenty four hours we have to have a very ample reserve capacity in the manufacturing, because of the variation in the hourly send-out of gas. For instance, during the hour in the winter time, or through the fall and winter, in the hour from half past five, approximately, to ha*ve* past six or seven, the people are cooking supper or the houses are lighted up and the demand is very heavy. That is what we call our maximum hour.

The MASTER: You don't manufacture the gas just as it is used?

A. We manufacture it into a storage holder, and that is a large receiver for the gas, and the gas enters it from the manufacturing plant in one point and is withdrawn from it in another, so that we are continuously making into it and it is being continuously withdrawn; but if we make it faster than it is being withdrawn,
190 this receiver rises in the air and stores a surplus amount of gas manufactured.

The MASTER: How much can you store?

A. We can store in this one holder 1,132,000 cubic feet, or just a trifle more than one half of the maximum day's send-out last winter; In other words, this would only run us for a half day.

The MASTER: The distributing part, does that hold any?

A. No, nothing to amount to anything; nothing but a two or three minute supply.

Q. That is to say, if the regulator which lets the gas in stopped the gas in the mains would furnish the supply how long?

A. If we shut the valve from the works which controls the distribution system, the gas would go out almost like that. (Witness snaps finger.) It might burn for a few minutes in some places, but would almost instantly pass out. So there is no storage capacity in the mains. We have an additional holder that holds only 300,000 cubic feet, but it is only used in an emergency, because the pressure is insufficient to properly supply the whole of the city.

The MASTER: This other was how much?

A. We have one holder which holds 1,132,000, and one which holds 300,000 and then we have what is known as a relief holder

which holds 175,000, but the gas in the relief holder is unpurified gas—raw gas.

Q. I want to ask this further question—would it be practical and good business management and could you give good service if your plant was only capable of manufacturing the maximum amount of gas required to supply your customers?

Objected to on part of defendants as incompetent, immaterial and not reexamination.

Q. In other words, what is the necessity for the reserve capacity?

191 Defendants interpose same objection last above made.

A. These machines for manufacturing gas, which we call sets or units, have to be re-lined or shut down for repairs, and in our business we have to be absolutely sure to keep the supply of gas on the city at all times. It is a fundamental principle that is drilled into every gas engineer to keep the gas on the town at all times. We have to be safe at all times in our capacity and we have to keep sufficient capacity to absolutely insure that. The gas has never been out in Des Moines since I have been here in eight years, in any district or in the whole city. That is, of course, occasionally there are individual stoppages of some one consumer, something of that kind; but the gas has never been shut off on the mains.

Q. What are the exigencies with which you have to contend, or which you are required to anticipate, which you may have to contend with that would cause a br-aking down, or chutting down of one of these units of manufacture.

A. We have to shut down these machines and re-line them and put new checker brick in, and during that period they are out of commission, and we cannot manufacture on them. In addition to that, if one of our engines breaks down, we have to be in a position to start another; if the gas through any oversight should leak back of any one of our gas pipes which is furnishing water to these mains, they would explode and we would have to put on another machine immediately—that has happened since I have been here—to absolutely insure a constant supply of gas to the city.

Q. You spoke of the necessity of shutting down to re-line the generator and perhaps some of the other mechanism, with fire brick I wish you would explain that to the court more fully, and

192 how frequently you have to do that, and how long it takes, and how long you have to shut down to do these things.

A. These units or shells are all lined with fire brick, and it is in these units the gas is manufactured. The unit consists of three shells, which in our largest unit are ten feet six in diameter and about twenty two or twenty four feet high; the other two are short. These are lined with fire brick and resist the intense heat in them; and two are filled with what we call checker brick; that is, fire brick placed on edge, piled regularly on edge, with a little space between them so that the heated air and gas can go between the brick and absorb the heat from the brick. Now, after a machine has been run continuously for several weeks or months, these brick become as

we term it, carbonized, or accumulate carbon and become inefficient and have to be replaced clean.

The MASTER: How often?

A. The time varies. Machines should run about from sixty to ninety days, but then they have absolutely got to be clean.

Q. Now, when the plant is shut down for the purpose of making these needed periodical repairs, time has to be allowed for them to cool, so that the workmen can go in and work?

A. Yes, of course, the time that they have to be shut down does not make very much difference because after they are shut down it stops operation entirely; but the length of time they are shut down is of no consequence.

Q. It would be impracticable to fill your holders and then repair before the supply in the holders went out?

A. We would not do it without a very large storage capacity. It takes several days; it is not a question of stopping for a few minutes.

193 & 194 Q. So that independent of the exigencies from break downs you have a period of every sixty or ninety days where it is absolutely necessary to have this reserve power for manufacturing?

—. Yes, sir.

—. Now, when you are delivering up to your maximum of two to two and a half million in twenty-four hours, you have to run your full manufacturing capacity during that whole time or only a portion of the twenty four hours; explain that to the court.

A. We have to run the full twenty-four hours and we run whatever capacity is demanded by the rate at which the gas goes out. That is, if we are only requiring two million feet a day, we run one machine; if we require three million feet a day, we will add another machine. When that demand has gone off we will shut it down and bank the fires on it and hold it in reserve; but we are up at our maximum day to the practical operating limit of safe capacity without using our reserve until it is required.

The MASTER: Does one machine make more gas than is consumed?

A. The largest machine has an approximate capacity of both of the next size. The largest machine we have is what is recognized as the largest efficient unit to build. The other machines were built, because at the time they were built they were efficient for the amount of gas demanded.

Q. Do you have to stop the operation of those units or generators for the purpose of cleaning the fires and getting the refuse from the coke out of the generator?

A. Yes, the generator or machine in which the gas is made has to be shut down for a period, varying from an hour to two or three hours to remove the ashes and clinkers from the fire; that has to be done once or twice or three times a day, depending on the
195 quality of coke which we used and the condition of the fire; and during that period of course the machine is not making gas. We have to be in a position, so that if that period comes dur-

ing the maximum hourly send-out hour we will be able to continue the manufacture with other machines, because we have not got a reserve capacity in our holders to safely carry us over that point.

The MASTER: In other words, you must keep on the gas?

A. We must keep on the gas.

Q. Mr. Haines, for the information of the Master, you spoke of the times when the maximum amount is required, have you any term used commonly that designates the extreme capacity of the plant; have you any term that you use that applies to the largest quantity of gas that you carry for delivery—I have heard the term peak load spoken of, what does that mean?

A. Peak load is a term which has come from the electrical business, but it has been adopted in our business to represent the maximum send out. Now in keeping track of the operations and keeping in touch with the safe operation of our property or plant, we have to watch the maximum weekly demand and daily demand and maximum hourly demand and that reduces the maximum hourly demand to a maximum demand in fifteen minutes, so that we will know at what rate the gas is going out and be prepared to anticipate that from day to day, and also at what rate we can manufacture the gas, so that by watching our storage and our manufacture and our send-out, we can insure this necessary constant supply.

The MASTER: How do you spell peak?

A. P-e-a-k. That idea comes from counting the amount of gas sent out each hour, on a piece of paper, and with respect to a straight line at the bottom of the paper, and then connecting these
196 points by a continuous line which forms a curve and at one point there is an apex in that curve where the maximum hourly send-out is represented by the highest point and that is called the peak load.

The MASTER: That is the point when the largest amount of gas is being consumed at any hour of the day?

A. Yes, sir.

Q. You referred in answer to Gen. Byers' question about the vacation of an alley or some alleys over there. I want to ask you what was done by the Company after these alleys were vacated by the city for the Gas Company, as you stated.

Objected to on part of defendants as being incompetent.

A. We occupied the whole of the north and south alley and the half of the east and west alley. I don't think we occupy the half of the east and west alley at present, but in the north and south alley we keep our derrick for unloading and the storage of pipes.

Q. How long have you been occupying this alley?

Objected to on part of defendants as incompetent and immaterial.

A. Since the vacation in 1907.

Q. You spoke about a part of these alleys or the ground formerly an alley not occupying it; what is the fact as to whether it is fenced in as a part of your enclosure?

Objected to on part of defendant as incompetent and immaterial.

A. The north and south alley has been fenced in since 1907. Neither that alley nor the north and west alley, the north and south and alley has never been used since I have been here for traffic, and the east and west alley has only been used very slightly. It is below the street and inconvenient to get to.

197 Q. By the public you mean?

A. By the public, yes.

Recross-examination by Gen. BYERS:

Q. The fact remains Mr. Haines, with respect to the demand upon this plant over here, that your experience for eight years has shown the greatest demand of the consumers of Des Moines for any one day was two million and a quarter cubic feet?

A. Our maximum daily send-out in twenty four hours never exceeded that.

Q. Supposing you run your gas plant over there to its full capacity tomorrow and pass the gas on into the holder, how long could you keep it there?

A. What do you mean by that?

Q. Before it went out to the consumer?

A. The gas entering the holder would go immediately out to the consumers or as they demanded it.

Q. So that you have a holder that you can simply supply two million and a quarter feet, is that the idea?

A. Well now you are getting technical, up on a technical part of it.

Q. I want to straighten me out. I don't pretend to be a gas expert. Where did you store your gas?

A. In the holder.

Q. How long can you keep it in storage if it is not drawn off, shut it off, how long can you keep it there?

A. Keep most of it there indefinitely; part of it of course may escape from the holder.

Q. But the rest of it you could keep there indefinitely?

A. Yes.

198 Q. That is what I was trying to get at; you could keep it in the holder indefinitely. Now, then, what is the capacity of the holder you have?

A. Which holder do you mean?

Q. Any of them, all of them put together?

A. Our largest holder has a capacity of 1,132,000 cubic feet, and the next one is 307,000 cubic feet or 309,00– cubic feet.

Q. Is there any other?

A. There is a relief holder for unpurified gas with a capacity of 175,000.

Q. You don't put the gas ready for consumption in there?

A. No.

Q. I am talking about the holders that take the gas ready and fit for consumption.

A. You asked me to state them all.

Q. There is two of them.
A. Yes, sir.
Q. The two together have a capacity of how much?
A. About 1,430,000 feet.
Q. Not quite a third of the capacity of the plant?
A. Yes.
Q. I mean the manufacturing capacity?
A. That is, if we undertake to operate all of our machines at once.
Q. For the purpose of cleaning and ordinary repairs all you need is holder capacity, isn't it?
A. That is what we have the holder capacity for.
Q. I say that is all you need to take care of your capacity, is holder capacity?
A. Sufficient, yes.
Q. When you have that you are safe?
A. If the holder capacity will permit us to shut down our
199 machine, if it is large enough to extend over the period necessary for repairs, then we wouldn't be required to operate any reserve capacity.
Q. So that the only necessity is storage capacity more than anything else—it wouldn't help you a bit to have a manufacturing plant of ten million capacity and a holder of a million capacity.
A. That I should say would be out of proportion. It would depend entirely on the local conditions and the kind of demand required.
Q. So far as the local conditions are concerned, you have been here eight years?
A. Yes, sir.
Q. You know something about the history of this plant for a great many years?
A. What is common knowledge about town.
Q. In all the eight years you have been here there has not been any unusual shutting down or any unusual disturbance over there that made it necessary to have a large amount of gas on hand?
A. Well, I have always, since I have been here, studied and kept the various component parts in balance, so that as the business increases, if additional holder capacity is demanded, it will be provided and if additional manufacturing capacity is demanded, that will be provided. It is not always necessary to provide both manufacturing capacity and holder capacity at the same time.
Q. What you have done is to anticipate the future as to manufacture?
A. We feel entitled to do that, yes sir.
Q. Can you give the Master some idea as to when this point was reached in Des Moines, that you say made it necessary to increase the capacity of the plant?
200 A. The growth of a city and the growth of the business are dependent on each other, and they are gradual; and every few years as the demand is increased, we find it necessary to add another unit of manufacture, another manufacturing machine or an additional holder, and when the demand gets to the point at which we find from experience and judgment that there is an element of hazard or risk entering into this constant supply, then

we study the engineering problems involved and decide whether it would be better to construct additional machines or additional storage holders, and in deciding that we take into consideration the past growth of Des Moines, making a careful study of the future growth of Des Moines, the consumption of gas as it has been in the past, what we will anticipate it will be in the future, and we find from experience that those estimates of the consumption in the future are pretty well borne out; they have been made for many years and it is a part of the study of the business. Now when the danger point, or we can see in a year or two, the danger point will be reached, then we construct additional capacity, either manufacture or holder capacity, to provide for that anticipated increase. That is a part of the science of the engineers.

Q. That is very enlightening to me. What period in the future have you anticipated?

A. I should say, in a general way, if the growth of Des Moines continues as it has been, that in the very near future we would have to add an additional storage capacity or additional manufacturing capacity.

Q. You have not given me the point—what point in the future did you take into consideration, when you increased the capacity over here, give the Master the benefit of your judgment.

201 A. When this large machine was constructed in 1909, we were just about up to the safe limit of the capacity of the other machines. Now it would have been uneconomical for us to have constructed a small machine, half the capacity of this large one, because it could not be operated as economically. We felt and believed, and it has been demonstrated that this larger unit was more economical to us to use in manufacturing up to its capacity than it would have been to add one additional smaller unit.

The MASTER: He wanted to know what time ahead you anticipated in making this increase?

A. I suppose about three or four years; two or three years.

Q. Then you have not reached this point of complete saturation, as you referred to in your examination in chief?

A. When do you mean?

Q. At any time. You now state that it has been your policy and your practice since you have been here, to keep not only the capacity of your plant up to a point where it could meet present demands, but that you have followed out the line that observation and experience has demonstrated must be pursued in the gas business and have anticipated the demands of the future. If that is true, then you have all the time anticipated, ever since you have been here?

A. We have to anticipate the future because if we do not we get shut down and get out of gas.

Q. Then you do expect, and when you put in this additional machine over here, you did it on the theory that the output of the Des Moines Gas Company would increase year after year?

A. I think there is no question but what it will as the population of the City of Des Moines increases.

Q. And you have now everything prepared to meet that
202 future increase in growth?

A. Before next winter, yes sir.

Q. You expect the demand in Des Moines to about double itself in the next four or five years?

A. I should hardly say that, no sir.

Q. Well about that?

A. No, not in such a few years.

Q. What did you estimate in carrying out this settled policy that you have learned from experience?

A. We estimate about eight to ten per cent increase per annum.

Q. In the next four or five years then you would expect an increase of at least fifty per cent?

A. You understand of course those estimates are made and revised each year.

Q. And they are based upon the experience of the past?

A. Yes, sir.

Q. Now, just a word or two further about this Exhibit 1. I wish you would examine the figures and the writing below the print at the top of the exhibit and the statements that are written in your hand writing and tell me who made the figures.

Objected to on the part of complainant as not proper cross examination and certainly not proper re-cross examination and immaterial.

A. You mean the amounts placed in here?

Q. Yes, sir.

A. I have not the slightest idea.

Q. I mean also the writing at the right of the figures?

A. I have not the faintest idea.

Q. Will you give the Master the benefit of your recollection as to how it comes, after Mr. Keffer had sworn to that statement
203 on some day in February, you a month or so later also swore to it?

Objected to on part of complainants for the same reasons as last above.

A. The ordinary procedure in filing these is to file them some time before the end of March, there is a general date in which those reports are filed.

Q. That does not quite answer my question. When the statement was first prepared for the assessor, it was done by the secretary, Mr. Keffer, was it not?

A. Yes, sir.

Q. And he verified it?

Complainant interposes the same objection as last above to all these questions.

A. Now, that was done on the 16th day of February, 1908, and on the 14th day of March of the same year appears on the face of this exhibit a statement in your hand writing and over your signature.

Q. Do you know why it was that you were asked to make any statement with reference to this exhibit?

Objected to on part of complainants as not cross examination and not proper re-cross examination and incompetent and immaterial.

A. Why, yes; these blanks are supposed to be filled out and filed as soon after the first of January as possible. Now it is frequently very inconvenient to make these at that time and the assessor has nearly always as a matter of courtesy extended the time until later. It is usually a verbal understanding that they will be filed some time between the middle of March and the last of March and when they are finally completed they are simply placed on my desk and left there until he is ready for them.

204 Q. Isn't it a fact now that a controversy arose right away, the assessor questioned the valuation stated in this exhibit, and to settle that controversy you added your verification to Keffer's, and you wrote on this paper this statement?

A. I don't recall any such controversy; I don't remember; there may have been some.

At this time, 12 M., July 14th, 1911 an adjournment was taken until 1:30 P. M.

205 TWO O'CLOCK P. M., FRIDAY, *July* 14, 1911.

JANSEN HAINES continued on recross examination by Hon. H. W. Byers.

Mr. BYERS: In connection with the cross examination of the witness Haines, and to preserve the exhibit, we offer Exhibit 1 and read it into the record as follows:

Objected to as not proper cross examination, as immaterial and incompetent.

"Statement of the Des Moines Gas Company. Des Moines, Iowa, January 1, 1908. Made under Section No. 1323 of the code of Iowa for the purpose of assessment. Authorized capital $2,250,000. Number of shares thereof 22,500. Number of shares issued 22,500. Par value of each share 100. Amount paid in on each share (in property) 100. Total capital paid (in property) $2,250,000. Real estate owned by above corporation, lots 3 to 10, Block B Scott & Dean's Addition to Ft. D. M. $120,000. Lots 1 to 10, Block C $864,760. Lots 3 to 7, Block T, 760. Lots 3 and 4, Block K, 2,500. Lots 9 and 10, Block M, 2000. Lot 9, Block 15, Valley Junction, 12,000. Total $1,002,020. Opposite these figures is written the following: "Foregoing amount of $1,002,020 includes all gas machine apparatus, mains, meters, etc. Bonded indebtedness authorized, $1,500,000. Issued $852,000. This stock is not worth par. The value of the capital stock is not in excess of the value of the property as assessed. Jansen Haines, Manager. Sworn to and subscribed to before me by Jansen Haines this 14th day of March, 1908. Charles W. Schramm, city assessor. Dividends declared last year under numerous items here with a bracket opposite, none. Gross

earnings last year $430,900.83. Net earnings last year,
206 $51,311.41. Highest price of sales of stock during preceding year, no sale. Amount of surplus, none. Average price of last sales, no sales. Amount of profit added to sinking fund, no sinking fund. Highest price of sales of stock between 1st and 10th of January of current years, no sales. State of Iowa county of Polk, S. S. I W. B. Keffer of the above named corporation do solemnly swear that the above statement is true to the best of my knowledge and belief. Signed, W. B. Keffer. Subscribed and sworn to before me by W. B. Keffer this 15th day of February 1908. Fred P. Carr, Notary Public in and for Polk county. Section 1323, every such corporation on or before the 25th day of January shall furnish to the assessor of the assessment district in which its principal place of business is located a verified statement showing specifically with reference to the year next preceding the first day of January then last passed. Section 1357. If any corporation or person refuse to furnish the verified statements in this chapter required or list his property or take or subscribe the oath in this chapter required, the executive council or assessor, as the case may be, shall proceed to list and assess such property according to the best information obtainable and shall add to the taxable value thereof 100 per cent which valuation and penalty shall be separately shown and shall constitute the assessment. J. M. Welch Printing Company, Des Moines. 15959—12-06.

Q. I made some inquiry yesterday Mr. Haines with respect to the contracts for oil and coke and other material that you said was made by the purchasing agent of the United Gas & Improvement Company. Did you look to see if you had any of these contracts?

A. No, sir.

Q. Do you have any of them?

207 *Q. Do you have any of them?*

A. I don't know whether I have or not. I have some memorandum that give- the essential facts I think but I never bother my — about the rest of the contract.

Q. The memorandum you have is simply memorandum that your superior furnishes to you?

A. Furnished to me by the purchasing agent of the Des Moines Gas Company.

Q. But does not purport to be the contract itself but his statement of what the essential elements of the contract are.

A. The memorandum states that these are the facts of the contract, the essential features of the contract for my use. That is my recollection of it, it may be a copy of the contract for the stuff but I have not paid particular attention to it. The features that interested me were simply the prices and quality and term-.

Q. I wish when you go back to the office and have time you would examine your records up there and if you have any of these contracts I would like to have you bring one of them in when you come into court.

Objected to as not the proper subject of cross examination.

Q. Have you given now a list of all the buildings on the property on the east side of the river in your testimony here?

A. I have only given a list in a very general way. That is all shown in the inventory which we furnished to the city on March 8th.

Q. Are there any residences on the property, any buildings over there that are used for residence purposes?

A. No, sir.

Q. Or rented for that purpose?

A. No, sir.

Q. Are there any buildings over there used for any other
208 purpose than in the business of the manufacture of gas?

A. There are no buildings that are not used for the gas company used in supplying gas for the city of Des Moines, no sir.

Q. May be you distinguish between manufacturing and supplying?

A. I distinguish in making that answer, I meant to distinguish between manufacturing and stables, I don't consider stables part of the buildings used for manufacturing gas yet they are on the property of the Des Moines gas company and are used in the gas business in Des Moines.

Q. Are there any other kind of buildings?

A. No sir. Except the manufacturing buildings, holders and meters and store building for keeping materials in, that is all.

Q. And the stables?

A. And the stables.

Mr. BYERS: That is all now. I want to recall Mr. Haines before the case is over.

Redirect examination by Hon. GEORGE H. CARR:

Q. You were asked on cross examination with respect to whether the capacity to manufacture might not be practically and safely limited to the daily demand, having a sufficient holder capacity or storage capacity for the gas? Now I wish you would explain to the Master in detail whether it would be a practical and economic proposition to limit the capacity of the plant, to limit the manufacturing capacity of the plant to the daily demand relying on your holder capacity for the purpose of storing up gas to cover the demand that would be upon you during the time you would have to shut down your manufacturing plant? I wish you would
209 answer that fully in detail and give your reasons?

A. Well it would be possible to construct holders of sufficient capacity to store the gas required to supply the city over the period of shutting down the apparatus used in manufacturing gas for the time necessary to repair it or reline the machines under ordinary circumstances, but if that was done it would require so much ho-der capacity that it would be much more expensive to construct than it would — construct the reserve capacity of manufacture and the additional expense of the interest on that added investment would be greater than any loss of economy in the use of the reserve apparatus for manufacturing. In other words it would come, to give a storage capacity for

say, a period of eight days, seven or eight days which would be about the maximum time necessary to shut down for repairs, for current repairs or for repair in case of accident would require an investment in holder storage of upwards of a millio*j* and a half probably or more, a million and six hundred thousand dollars while the additional reserve apparatus for manufacturing would require an investment of approximately $150,000 so that it would require ten times the amount of investment in storage that it would in this reserve capacity and of cours- the interest on the additional investment would have to be provided and would mean a higher cost of manufacture of gas than the reserve capacity would require.

Q. To bring that idea out a little more fully, you have said, that a period of seven or eight days would not be an unexpected period in which you might have to shut down manufacture. Now what storage capacity would you require for a sufficient supply of gas to cover that period say, take it in the winter time when
210 your output is up to the maximum?

A. Well, it would require a storage capacity of about 16 or 17 million feet, or upwards of that, and that would be equivalent to about sixteen holders of the size of our present largest holder.

COURT: Sixteen did you say?

A. Sixteen. That is, we would have to build fifteen additional holders to safely shut down and depend on that storage for the relining and repairing of these manufacturing units, if we only had one to depend on.

Q. It is the estimated expense of such holders that is covered by the figure you have given.

A. Yes, sir.

Q. And the estimated expense of the reserve manufacturing capacity such as you now have is covered by your figure which you gave?

A. Yes; the figure of approximately $150,000.

Q. Now you were asked in regard to building for the future or anticipating future demands in making improvements. I wish you would explain fully to the court why it is more economic, if it is so, in improving your plant or increasing its capacity to increase it for a period that looks to some extent into the future rather than for the immediate future or present demand making your answer full and complete on that subject?

A. The maximum demand occurs in the fall and winter months and each year as the city grows or as the business grows there is an increase in that maximum demand which varies somewhat according to the weather. Some years we will get a maximum demand on the day before Christmas, if the weather is dark and stormy, as it frequently is about that time, it will be a certain figure. If in the succeeding year it should happen to be clear and
211 sunny we might not get that maximum demand at that same period. In fact in some years our maximum day has been less than it is on the previous year due to these weather conditions, although the general business will still show an increase from month to month and year to year. But in a general way that increase in maximum day corresponds about to the increase in the

growth of the business over a period of years which will average very nearly the same thing and we then estimate for safety that that maximum day will increase at the rate of about ten per cent.

Q. Over what period do you mean?

A. Ten per cent over the previous year. In other words, if our maximum day last year was 2,228,000 we would put our maximum day this coming winter, estimate it under similar conditions of the weather would be an increase of 228,000 feet.

Now to provide for that maximum would require an additional manufacturing capacity of 228,000 feet a day, but if we had a unit only capable of manufacturing 228,000 feet it would be more expensive to operate than if we should anticipate two or three of four years and construct and put into peration a unit which would take care of the growth for a period of two or three or four years and when we reach the limit of that unit add another large unit in the same way. If we did not do this our plant would today be constructed of twenty or thirty units of small capacity and inefficient in operation occupying more land and more real estate and subject to all the disadvantages of manufacturing on a very small scale in each community. Does that answer your question?

Q. I think so. You have been asked as to the period of
212 anticipation, of the period you looked forward for the purpose of keeping the plant up for future demand. Now I will ask you whether the plant as it was on the 1st of January was excessive in that there was invested more in the plant and its capacity was greater than was reasonably required for the future. I think you said somewhere in your evidence in the near future you would expect if the growth of the city continued and the demand resulting from that element would increase the demand that you would have to expand. Now I wish you would explain that in that respect.

Objected to in that form as incompetent and irrelevant and object to the competency of the witness, also as leading.

A. In developing the construction of the plant as I have stated before the various pieces of apparatus for manufacturing and purifying and storing gas have to be kept in balance, that is to say, that if we find that our storage holder is becoming too small by reason of the increase in the business then we will construct a new holder. If we find the manufacturing apparatus is too small, but our holder capacity will be ample provided we have the additional manufacturing capacity, we will construct additional manufacturing capacity. Now when the autumn comes around we make a careful estimate of the requirements for the ensuing year of the amount of gas which we anticipate we will sell and we also make a careful study of the capacity of the various components parts of the plant. Then we with the assistance of our engineering board or staff will take up the various engineering problems involved in the question of providing additional capacity in the weak parts of the plant as is shown by our previous year's operations. These ques-

tions of course involve the different methods of construction
213 and in the different modes of construction I mean whether we shall provide this coming year additional manufacturing capacity or additional holder capacity. For instance there are other component parts, but I use this for an illustration. Now when we devise the question of engineering problems entering into it, then we make careful study of the comparative cost of these engineering problems involved and decide upon the most economic method from the standpoint of engineering for the construction of the development of the plant to provide for the demand which we estimate for the next year and for the year after. These estimates are made each year, been made for many years and the same studies are made and the experience of the previous years used and with that information and keeping in mind all the time that the interest on the investment on one hand and the increased cost of operation on the other are to be met with if we make a mistake in engineering and designing, we aim to keep down those two items, keep down the interest on investment by constructing as economically as we can. Sometimes we have to make an investment which will provide for a few years in advance because it is the most economical thing to do. If we were to build without sufficiently contemplating the future, we would have to employ additional help, we would have heavier wear and tear on our machinery and we would have the uncertainty of being able to maintain our constant supply and render service to the people at the best price we could, at the lowest cost to the public. So these are the elemental features that control.

COURT: You act as engineer or do you have engineers under you?

A. I have an engineer who is in charge of the operation of the plant and who originates the estimates for these improve-
214 ments and brings them to me and they are passed upon by me, we discuss them, go over their features and present them in the form of an argument if we can make an argument for them from the standpoint of economy, the standpoint of desirability and necessity, then we forward them to the engineering department of the United Gas Improvement Company in Philadelphia which is composed of the most eminent gas engineers in this country. They take these estimates and thoroughly study them, give them the benefit of their experience and if it does not meet with their approval they return them to me for further argument. If my arguments are not sound they will tell me why. If I am still unable to argue for them they turn them down entirely and I cannot have the improvements at this plant. Without their approval and without my approval we cannot raise the money to make the improvements here at all and it is no easy matter for me to get money.

Q. Now, Mr. Haines, taking into consideration the principle which you have fully elaborated, I ask you whether the plant as it is today in your opinion is excessive?

Objected to as incompetent, immaterial, and object to the com-

petency of this witness and the question simply calls for a conclusion.

A. No, sir; I should say not without any question.

Q. With respect to the necessity of being in a position at all times to supply gas so as not to permit any interruption of the supply from one year's end to the other, I wish you would give to the Master a little more fully than you have heretofore done the reasons why that necessity exists?

Objected to as having been fully gone over.

COURT: The reason why it is necessary to keep a constant
215 supply of gas?

Judge CARR: Yes, and that involves also the effect that would follow from the failure to do that.

A. The first consideration is that an interruption to the supply of gas to the mains which is temporary, in other words if the plant shuts down, stops the supply of gas and then starts again the people who have had their burners lighted if their lights go out and the gas comes on again, they may be asphyxiated, may cause explosions in their houses, the escaping gas if it does not come to their attention in time to ventilate the rooms or to light it. The second reason I should say is that if a consumer wants to use gas and finds that his supply is shut off and he can't use it it is all an improper service, he will complain about it and he has every reason to complain about it, and after he has complained about it, he will use something else use coal, or kerosene, wood, gasoline or candles or whatever he can get and that loses his business by that competition and we want his business. It is part of our business to get his business and keep it by giving good service.

Recross-examination by Hon. W. H. BYERS:

Q. The estimates that you have just referred to that are made with such care and after debate and argument, I suppose are in writing?

A. Some of them are in writing and some I think are oral.

Q. How does the oral ones get down to Pennsylvania?

A. I was just going to state the engineering department of the United Gas Improvement Company is always at my service
216 for these discussions and correspondence in regard to these estimates. They have a number of engineers and if the occasion requires it they come to the Des Moines plant and inspect it, take their measurements, from their estimates, obtain their arguments, for or against it, and make their report accordingly.

Q. In order to save as much record as possible, is the estimate for last year in existence anywhere where we could get at it?

A. I think it is in existence.

Q. Is it here in Des Moines?

A. Yes, sir.

Q. Will you produce it?

A. That is for Judge Carr to say.

Q. Why for Judge Carr, you are president of the company aren't you?

Judge Carr: Do you mean to say has he the document where he can produce it?

Mr. Byers: No I asked him if he would produce it.

Judge Carr: We object to that as not proper cross examination and object to this method of seeking to get records. If there are any records in the case that counsel desire, or are proper for them to have, there is a proper way to get them, not by putting a witness on the stand and going outside the realm of cross examination and asking him if he will produce them?

Mr. Byers: That seems strange to me, in view of the fact that this testimony is based upon certain estimates and I simply want to know if these estimates are in writing and we can have them.

Court: You have a right to ask the question.

Q. Will you produce it?

A. Yes, certainly.

217 Q. Is there any difference between the kind of gas you sell, fuel gas and illuminating gas?

A. We manufacture and sell but one kind of gas.

Q. All goes through the same holder and out the same meter does it?

A. Yes, sir.

Q. And the large generator that you have been referring to was built last year some time?

A. Built in 1900.

Q. Finished when?

A. In 1900.

Q. If I remember your testimony correctly you have five of such generators from ten feet down to six something?

A. We have two six feet, two eight feet six, and one ten feet *sic*.

Q. That would be five?

A. Five, yes.

Q. When did you last use the two smaller ones?

A. I don't remember the exact date.

Q. How many years ago?

A. It was some months, I don't remember exactly how long.

Q. Was it within a year?

A. I can find out and let you know exactly if you want to know.

Q. Don't you know?

A. I don't operate them, I can't remember. The superintendent f the works operates them when it is necessary to operate them.

Q. You have been just telling us that you as manager made these timates, that you argued them bask and forward, in doing that ou knew all about these generators, how many of them were in use d how many of them you could use?

A. We can use any of them at any time. They are all 8 kept in condition to use at any time.

Q. I want to know when these two were used last?

A. I can bring the man that knows, I haven't it with me. It is

a question of some months, perhaps eight or nine months, maybe longer than that, maybe a year but would not be much over a year.

Q. When was the eight foot one used?

A. Within a few weeks.

Q. Get it something nearer?

A. I would rather give the exact date.

Q. I wish you would get this and give it to us when you come in again.

A. I will.

Q. Where are these two smaller generators with relation to the larger ones?

A. They are in a separate building so in case of any accident to the other they may be used independent of it.

Q. Has there been a time since you have known that gas plant when all of this machinery was out of order for eight days?

A. No, certainly not.

Q. When *t*ou told Judge Carr it would require sixteen holders or holders for sixteen million feet of gas if you were to shut down for eight days you meant by that to convey to the Master the impression that the whole business would be shut down for eight days did you not?

A. I stated it would require the equivalent of sixteen of our present holders to continue to supply for eight days if we were dependent upon one set of apparatus and it was shut down.

Q. No such instance ever occurred with respect to this plant did it?

219 A. We haven't that number of holders, but we have more than one set so it could not occur.

Q. You never have known at any time since you have known this plant over there except for one hour or two hours that had the entire machinery shut down so that you were not manufacturing at all?

A. Oh that is shut down very often for an hour or two.

Q. Because of breakage or something of that kind?

A. Shut down *of* an hour or two would not affect the storage.

Q. Of course you understand I don't mean is it shut down when you get all the gas you can use, but shut downs you are compelled to make?

A. Yes, we have had shut downs of I think up to 12 or 14 hours.

Q. Is that the longest you ever had?

A. The longest I would ever want to have with this plant.

Q. Is it the longest you ever had?

A. This once, I don't know of any other.

Q. When the entire plant was closed down?

A. Yes, the manufacturing plant of gas.

Q. That is the longest time is it 12 hours?

A. That is in my recollection.

Q. When was that?

A. I think that was the last time we blew up the blast pipe.

Q. I know, but when did you blow up the blast pipe?

A. It has been some years, really I don't remember now, a ques-

tion of some years, four or five years probably, three or four years, I don't remember exactly when it was.

Q. That was considered in these very careful estimates that that *that* might happen in four or five years was it?

A. Yes; certainly it is. One of the elements of hazard in
220 the business?

Q. That was the only time the plant shut down twelve hours?

A. Yes, sir.

Q. Now can you tell me another single time since you have known it that it shut down 12 hours.

A. That is the manufacturing equipment, stopped the operation?

Q. Yes, so you were not making gas.

A. I don't recollect any of that length of time. The operation of these machines is dependent on the demand. If the demand drops off so we can shut down we do shut down and if the demand does not stop we can't shut down. That is the situation and it is that situation that we have to provide for.

Q. You understand I am not asking about shut downs that are due to the fact that you have got gas enough to run for twenty eight or forty eight hours. I am talking about shut downs that you say you have to consider in providing sufficient capacity to make gas?

A. This is the kind of shut downs which we make, shut downs to repair and reline these gas manufacturing machines and sets or units as we call them and that may take from eight to ten or six to ten days depending on the size of the apparatus and the condition of them when we get into them.

Q. What is the capacity of the two smaller generators, you describe, what would be the daily capacity?

A. Of the two combined.

Q. Yes.

A. Oh six or seven hundred thousand cubic feet a day.

Q. And of the two eight feet?

A. About 2,400,000 cubic feet a day.

Q. About a million two hundred thousand each?
221 A. Yes, sir.

Q. And the capacity of the larger one is about two million?

A. About two million, yes.

Q. Which one of these five is in operation now?

A. I can't tell you.

Q. I don't mean this minute, but I mean in the last week?

A. Well the larger machine is the one we operate whenever possible because it is the most enconomic machine to operate.

Q. That is the only one that is in operation now.

A. You mean today.

Q. Yes, and the last week, two weeks, three weeks or a month.

A. When that machine is shut down you operate the next two machines.

Q. You do that if you operate at all, but I am not asking that,

the large one is the one in use and has been for the last few months?

A. We use the large machine as much as possible and rely on the other two when the large one is shut down.

Q. When did you use either of the other two last?

A. I said I would get you that exact information, I haven't at now.

Q. You don't know whether it is within a month or not?

A. That is within the jurisdiction of the engineer.

Q. Well don't you have that information in the office every day?

A. Yes sir.

Q. It is under your jurisdiction?

A. It is under my jurisdiction, but he has the say as to which machine shall go on and his report is made to me daily. That report is made on a little card and laid on my desk every day and if I had paid attention to it I could have told you today.

Q. Do you make any entry on any book from the card?

A. No, the card is made from entries on the books.

Q. On what book. A book found in the gas company's office.

222 A. Yes, in the daily records of the office.

Q. Now if I understand your methods as you undertook to explain to Judge Carr, of keeping the efficiency of the plant up there would be no such thing as depreciation at all would there?

A. Yes, sir.

Q. Where would it come in?

A. Well let me illustrate it. Suppose you buy a suit of clothes, if your clothes soiled you clean them. You wear them as long but ultimately you outgrow them or the fashion changes you want to get another suit of clothes and you have to discard them. Now there may be some value in those, some use for them, but they have depreciated and you can't use them.

Q. Are you giving that answer seriously or because you think it is the right point for a little humor?

A. No, sir; I mean it seriously. I simply mean to differentiate—

Mr. Byers: That is all.

Witness excused.

223 B. F. KAUFFMAN being called on the part of the complainant and sworn and examined in chief by W. L. Read, Esq., testified as follows:

Q. What is your name?

A. B. F. Kauffman.

Q. Where do you live?

A. In Des Moines.

Q. What is your age?

A. Thirty six years of age.

Q. What is your business?

A. Real estate and insurance, principally.

Q. Real estate in what way?

A. Buying and selling for myself and others.

Q. How long have you been engaged thus in the real estate business.

A. I have been more or less in the real estate business for a period of possibly fifteen years.

Q. When and upon what occasion did you firs- engage in the management and control of real estate?

A. I first engaged in that line of business in handling the property real property of my father's estate.

Q. Your father was B. F. Kauffman?

A. Yes, sir.

Q. How much of an estate, how much real estate?

A. Oh the real estate probably represented one hundred to one hundred and fifty thousand dollars in value.

Q. What kind of property was it in, city property?

A. Business ans suburban property.

Q. Business and suburban property?

224 A. Yes, sir.

Q. To what extent have you engaged in buying and selling real estate during that period?

A. You mean as to value?

Q. No. I mean the extent in which you have engaged in buying and selling real estate.

A. Well I have bought and sold real estate almost continuously for from ten to fifteen years on my own account and have become interested with other parties and for the past two or three years we have bought and sold on commission basis for others as a partnership, the firm of Witmer & Kauffman.

Q. What other business connections have you had during your business career in Des Moines?

A. I have been associated with the Iowa National Bank, the Des Moines Savings Bank.

Q. In what capacity?

A. As stockholder and director.

Q. Any other business associations or connections?

A. I have been a stockholder in a number of enterprises in Des Moines at different times.

Q. Have you had any connection with the different organizations in the city for the promotion of the growth of the city?

A. Yes, sir.

Q. What ones?

A. I have been director of the Commercial Club for about five years, President of the Commercial Club one year. Been a member of the Greater Des Moines Committee for three or four years. A member of the Des Moines Real Estate Exchange, Auditorium Board and Sundry organizations.

Q. To what extent and to what degree of closeness have you followed the course of real estate exchanges and sales in the

225 city of Des Moines?

A. I have followed them -ather closely. I have been very much interested in real estate and followed real estate transactions

since I have entered the business field. I was attracted to the field because I thought it was a sound business to engage in and I have given to real estate more or less thought that what money I hoped to accumulate I shall hope to accumulate largely by real estate transactions.

Q. In what manner have you kept yourself informed and in touch with the real estate movements in the city?

A. I was called as adviser in a great many private transactions both in leases and in sales, both by prospective purchasers and by possible sellers. I have watched to some extent the papers and I have tried to keep in touch with the principals of these *of these* transactions personally.

Q. Is that information confined to outside or residence property or also inside business property?

A. Well it has not been confined. My effort to obtain this knowledge has been rather general in all classes of property.

Q. With respect to the various real estate transactions in the city for the last number of years have you acquainted yourself with the details of the transactions, price, etc.?

A. To a very large extent. I have probably known of most of the important fields, most important transactions in the city.

Q. What has been the trend in values and prices for real estate in Des Moines?

A. Been increasing very rapidly.

Q. Covering what period, if there is any period in which that is more marked than other periods?

226 A. In my entire experience it has been increasing rapidly, particularly the last five to ten years.

Q. Does that observation apply to inside business property as well outside?

A. Applies to all kinds of property.

Q. What do you say as to the amount of increase, the percentage of the increase taking the same period with which to make a compar-son?

A. Within ten years it has increased according to different locations all the way from fifty up *tw* two, three and four hundred per cent.

Q. Where is the business and financial center of West Des Moines?

A. I should say the financial center of West Des Moines would be probably 5th and Walnut street, unquestionably 5th and Walnut street.

Q. What increase in value in the real es-ate closely in to the financial center would you say for the last ten years?

A. I recall one piece of property on the corner of 5th and Walnut that *that* was at one time or ten years ago, or twelve years ago, was held between $35,000 and $40,000.

Objected to as immaterial.

Q. At what price?

A. At between $35,000 and $40,000 and that property today could not be purchased for very much less than *R*$200,000.

Defendant moves to strike out the ans-er of the witness with reference to the property as being irrelevant and immaterial.

Q. What is the general range of values of real estate say from 8th street on Walnut, east to the river on the west side?

Objected to as irrelevant and immaterial.

227 A. The values will run from $800 and $1000 per f-ont foot up as high as f-om $4500 to $6000 per front foot, dexending some upon the size of the property in question.

Q. Where are the properties of the lower valuation found?

A. The *gih*est value would be at Sixth and Walnut and the decreasing values until you get to the river and decreasing going westward, the summit being Sixth and Walnut.

Q. What is the general range of values upon Court Avenue from the Court House east to the river.

Same objection.

A. The general value is from $1200 *tp* $1500 and decreasing down to a point as low -s $500 and then increasing as you near the river, as you arrive at the river.

Q. Increasing to what figure at near the river would you say?

A. Probably seven or eight hundred dollars per front foot.

Q. What building and what business is conducted on Court Avenue near the river?

—. Approximately the largest grocery jobbing house in the city, Warfield, Pratt Howell Company and the Brown, Hurley Hardware Company which is also probably the mos*y* completely equipped jobbing hardware house of the state.

COURT: You are speaking of the property unimproved, supposing the buildings removed?

A. I am speaking of the bare ground. This Warfield, Pratt Howell building is rather a handsome expensive building, and would bring the value of the entire property up high.

COURT: As I und-rstand you gave these values as just the ground itself.

A. Yes, sir.

Q. Mr. Kauffman, do you know where the property of the
228 Des Moines Gas Company is located?

A. Yes, sir.

Q. Where indicating on the map, Exhibit 6, is the property you have last mentioned, that of the Warfield, Pratt Howell Company, and the Brown Campt Hardware Company?

A. It is on the corner of Court Avenue and First street, it is on the river bank, west Des Moines.

Q. The map Exhibit 6, to which your attention is called has a number of circles drawn with the court house as the center.

A. Yes, sir.

Q. The property of the Des Moines Gas Company is situated where, with respect to the circles.

A. The property of the Des Moines Gas Company is situated within a half a mile of the center of the radius which is the center of the court house square, that being about a block south of the financial center of the Fifth and Walnut.

Q. Now the property of the Warfield, Pratt Howell Company and the Brown Hurley Company lies east of the court house and on the bank of the river?

A. Yes, sir.

Q. How far from the property of the gas company?

A. About one block north and west across the river.

Q. Calling your attention again to the general range of prices, what is the range of values on Locust street from the river west to Seventh or Eighth street?

Objected to as irrelevant and immaterial.

A. The values on Locust will run approximately from $3,500 to $4,000 per front foot at Sixth and Locust on the corner and at Seventh and Locust and decreasing as you go west and decreasing as you go east to the low point of about $300 to $400 per front foot
229 for the lowest value.

Q. That low point is at the river is it?

A. That low point would be west of the Coliseum, between that and Second street.

Q. Where is the business center of East Des Moines, the portion lying east of the Des Moines river?

A. The principal business of east Des Moines is confined largely in one path and the center of that path probably being Sixth and Locust street-. The business will run from the bridge out Walnut street to east Fifth street, north on east Fifth to Locust, east on east Locust to east Sixth, north on Sixth to Grand Avenue and east on Grand Avenue to the limit of the business territory.

Q. What is the general range of values of property in the business portion of east Des Moines?

A. What particular section.

Q. Well the business portion lying east of Fourth street at present if that is the region of the highest values.

A. The highest value is on east Locust between Fifth and Sixth and will run from $800 a foot up as high as $1,200 a foot and possibly a little bit more for corners, the average being about $1,000 a foot in that block.

Q. From Fourth street west to the river on Locust street and on Walnut what is the general range of values if you know?

COURT: Let me ask a question, Locust street runs east and west or north and south?

A. East and west.

COURT: And with reference to the Capitol?

A. It runs directly into the Capitol, into the center of the Capitol. The wide green line shown on the map there running into
230 the Capitol grounds. The values on east Locust street between the river and Fourth street will vary from $200 to $500

per front foot. The values on east Walnut street will run from $200 to $500 per front foot and one or two properties slightly in excess of $500 per front foot.

Q. Is this upward tendency or trend in values, does that obtain in east Des Moines business property as well?

A. Yes, sir.

Q. Has that upward tendency been at all marked in east Des Moines?

A. Yes, sir.

Q. Are there any circumstances to which that is attributable in your estimation?

A. Yes, sir.

Q. Please state what they are?

A. There has been a general movement especially in the past five years to cement the two sides of the river. In other words, to annihilate the river line which separates the one city into two cities and make it one city instead of two cities. That has been accomplished by moving the principal public buildings on the river front. The new city hall has been built on the east bank of the Des Moines river between Locust and Grand Avenue. The new Coliseum built on the river bank on the west side, between Locust and Grand. The city library has been built on the west bank of the Des Moines river between Locust and Walnut. Directly opposite on the east bank of the river the Park Board have purchased the property for park purposes. There has been a new reinforced concrete arch bridge across the river at Locust street the same width as the street between curbs, and that same style of bridge is now being constructed on Walnut street and will be completed probably this season. These
231 things have tended to cement the two sides of the river and the general growth and general prosperity of Des Moines have interested people in the entire section, in the entire community rather than in an individual quarter.

Q. Aside from growth and population, has there been a growth in the manufacturing and jobbing industries of Des Moines?

A. Yes, sir.

Q. If so to what extent?

A. According to the best estimates obtainable by the commercial club the jobbing done in Des Moines in 1900 amounted to $48,000,000 the jobbing done in 1909 was approximately $110,000,000 in Des Moines, showing a little bit more than double.

Q. You say you know the location of the Des Moines Gas Company's real property?

A. Yes, sir.

Q. I call your attention to the map, the plat marked Exhibit 5. You may describe the property as you understand it according to that map.

A. Lots 3, 4, 5, 6 and 7, in Block T, Scott & Dean's addition. All of Block C Scott & Dean's Addition. Lots 3 and 4, in Block K Scott & Dean's Addition. Lots 3, 4, 5, 6, 7, 8, 9, and 10, in Block B Scott & Dean's Addition, and Lots 9 and 10 in Block M Scott & Dean's Addition.

Q. Have you made an examination and investigation of the prop-

erty of the Gas Company that you have described with a view to placing a valuation upon it?

A. I have.

Q. When did you begin making your investigation?

A. During the latter part of 1910, latter part of December 1910.

Q. In a very general way, what character of property is
232 this, I mean is it served with railway trackage facilities?

A. Yes, it — served by railroad trackage.

Q. That has already been gone into and I shall not go into it, any more in detail except to inquire whether you acquainted yourself with the location of the railway tracks and the trackage facilities that this property has.

A. I did.

Q. By what railroads is it served?

A. It is served principally by the Rock Island and the Burling-[ton] but by reason of trackage arrangements the Des Moines Union terminal line receives cars from any road entering Des Moines and delivers at the property in question.

Q. In connection with the investigations of this property, made by you, were you furnished any information with respect to the alleys in the various blocks?

A. I was furnished with no specific information except that the alleys are vacated. The alleys in Block C and the alleys abutting the property in Block K and the alleys in Block B are vacated and used by the gas company.

Q. You have assumed then that the gas company has the use of them?

A. I assume that they have the use of these alleys.

Q. This you have referred to as trackage property?

A. Yes, sir.

Q. By that general term you mean what?

A. I mean property that is supposed to be used for manufacturing, jobbing ware house, or any purpose requiring facilities to enable owner to handle large amounts of incoming or outgoing freight economically.

Q. Property served by tracks and switches?

A. Yes, sir.

233 Q. In what district or what parts of Des Moines is trackage property located, I am referring to trackage property not remote but inside trackage property?

A. The principal trackage property in Des Moines in the west side of the river would run from First street from the river west and as far as Seventeenth street as an absolute limit, and as a practical limit about 12th street.

Q. South how far?

A. There is a strip about three blocks wide. There is other trackage property south that is owned and controlled by Mr. Hubbell and we refer to it as trackage property because of his ownership in the Des Moines Union Railroad he could make trackage property out of it.

Q. So far as property owned by Mr. Hubbell or the Hubbell estate, is that open and on the market for sale?

A. No, sir; it is not. In east Des Moines the trackage would extend from the river to Sixth street except the trackage which lies at a considerable distance around the packing house and the old starch works, probably a mile and a half further out.

Q. Within what limits or streets north and south in east Des Moines?

A. From a half block north of Vine to Elm street.

Q. That would take in the half block lying south of Court Avenue?

A. Yes, sir.

Q. And then south to Elm street?

A. It would be a little bit over a half block south of Court Avenue for the reason the block between Court and Vine is a little bit longer north and south than the average block.

Q. *Referring* your attention to the trackage property in west Des Moines, to what extent is that property already appropriated and in use?

234 A. Very largely, almost entirely.

Q. What use is being made of it in a general way? That is is it permanent or merely temporary?

A. Largely permanent.

Q. What tracts of trackage property in the west Des Moines district are available or obtainable now in the market?

Objected to as irrelevant and immaterial.

A. There is some property in the vicinity of Seventh, Eighth and Ninth streets on trackage that is available.

Q. How much property, how large tracts?

A. There is one quarter block that is available, 132 feet square, at $67,000 on the southwest corner of Seventh and Vine. There is another quarter block immediately west of that available at the same price on the southeast corner of Eighth and Vine.

Q. At what value?

A. At the same value $67,000. There is another property immediately south of that consisting of a quarter block available at the same price.

Q. That is $67,000 for the *w*uarter block?

A. For the quarter block.

Q. Any more.

A. I can't say that I can give you definite values on any other in that vicinity except there are some few other properties that could be purchased.

Q. Large or small?

A. Mostly small.

Q. What size?

Same objection.

A. From sixty six feet to a quarter block.

Q. These three quarter blocks you have mentioned do they

235 lie contiguous?

A. Yes, sir.

Q. What is the area of the property of the Des Moines Gas Company?

A. Approximately eleven quarter blocks. Approximately two and three quarter full blocks.

Q. There are two full blocks, practically full.

A. Two blocks, practically full blocks with the exception of two small lots, forty four foot lots.

Q. Two lots out of one block?

A. Yes, sir.

Q. Is there in the west Des Moines trackage district any tracts available on the market that can be obtained so large as the area of the Des Moines Gas Company's property in east Des Moines or as much as an even two blocks?

Objected to as irrelevant and immaterial.

A. No, sir.

Q. Have you made an investigation with respect to that matter?

Same objection.

A. Yes, sir.

Q. To what extent and how fully.

Same objection.

A. To the extent of inquiring of property owners and from my knowledge of the ownership, of the existing owners of the property.

—. You have been familiar and known the uses that have been made of these properties?

A. Largely.

Q. *Recurring* your attention to the trackage that is in east Des Moines, are there any available and if so to what extent of available trackage properties, what area?

236 Objected to as incompetent, irrelevant and immaterial.

A. There are some trackage properties immediately east of this property, but it is not possible to consolidate any large body of ground.

Q. You mean they don't lie contiguous?

A. Don't lie contiguous.

Q. What size tract of ground is lying east of there that is available?

A. The largest block in one body would be approximately a quarter block, that is available for purchase.

Q. What has been and what is the demand for trackage properties in Des Moines?

A. Been increasing very rapidly and very strong demand for good trackage property.

Q. The trackage property in Des Moines is limited to these areas that you have described?

A. Yes, sir.

Q. Unless you go away out by the starch works and out to the suburbs is that true?

A. Yes, sir.

Q. You made your examination and investigation and estimation of gas company's properties last winter?

A. Yes, sir.

Q. Did you know what the fair reasonable market value of the Des Moines Gas Company's property was say on the 1st day of January this year, 1911?

A. Yes, sir.

Q. Exclusive of any buildings or improvements on the property?

A. Yes, sir.

Q. You may state what that value was?

237 A. $223,670.

Q. That does not take into account any of the improvements?

A. No, sir; none of the improvements.

Q. In making your valuations and giving your valuation, you have given it as a whole with respect to all the property?

A. Yes, sir.

Q. In making your investigation and valuation, did you consider it in less quantities than the whole?

A. Yes, sir.

Q. You may give the valuation placed by you on the various subdivisions as made by you?

A. The entire block C I placed the value of $110,880. On the quarter block in block K, consisting of lots 3 and 4, I placed a value of $25,200. Lots 3, 4, 5, 6 and 7, in Block T, I placed a value of $11,800. Lots 3 to 10 inclusive in Block "B" I placed a value of $65,890. And lot- 9 and 10, in Block M, I placed the value at $9,900.

Q. Is this total valuation which you have given the aggregate of the *serval* value you have just stated?

A. Yes, sir.

Q. This property as a whole does it have any greater value than the aggregate in your opinion?

A. Approximately the same, the aggregate considering the pieces as I have stated them here.

Q. I am inquiring whethe- taking the property as a whole, the aggregate area of the five pieces, would have a greater value than the sum of the several values which you have given?

A. A property of this kind as a whole body has a greater value than the total of its component parts, but I think that the component parts of this can be so divided that the to-al will be

238 approximately the same, the total value will be approximately the same in each case, but there is a point of division that would reduce the value.

Q. Well what do you mean by that?

A. To use an extreme illustration, if you would take a lot of two feet frontage it would have no value.

Q. The separate little properties have any?

A. A forty four foot lot would have little value comparatively.

Q. For what purp-se generally aside f-om use as a location for a gas manufacturing plant is this property available and adoptable?

A. It is very desirable property for warehouse property, for manufacturing, for jobbing, or for the combined manufacturing and jobbing.

Q. Is there a demand, and if so state the fact for proper ties for warehouse and storage purposes in Des Moines?

A. Yes, sir.

Q. What concerns are here already?

A. The Blue Line Transfer Company, the White Line Transfer, the Merchants Transfer, the Bolton Transfer, what was the Bolton Transfer, I have forgotten the name now, the Graham Transfer and the Vee Transfer are the principal ones.

Q. What is the fact as to whether houses are used for the distribution of products throughout the state.

A. Yes, sir.

Q. To what extent is that industry developed in Des Moines?

A. All the principal farm implements and threshing machine houses have distributing points in Des Moines.

Q. Are there institutions here maintaining storage houses for that purpose?

A. Yes, sir; increasing in number yearly.

239 Q. Did you speak with reference to that among other demands for trackage property in Des Moines?

A. Include that as warehouse property.

Q. Are there other features that make for value in this property of the gas company than you have already described and called attention to, if so, I wish you would add it?

A. The principal things that I consider in making up my values was first, its close proximity to the financial center, its close proximity to the population center. It is on the east bank of the Des Moines river, it is two blocks south of the main retail business street of the city, it is on the main tracks running east and west through the city.

Q. Railway tracks?

A. Yes, railway tracks. It is about a block and a half, about two blocks south of what will be the ends of the civic center which is not in process and which will be one of the most beautiful civic centers there in the United States when completed. Its location on the river front gives a large advertising value. Every person coming into Des Moines over any railroad except the Northwestern crosses the river in going one direction or the other, they see the property, they see any building erected on it, they see any sign on the property and that is all of great value in considering a manufacturing project or jobbing house catering to the public of the state or to the public outside of the state, when you consider transcontinental tourists.

Q. Assuming a requirement for as much as two blocks or two and one half blocks of ground lying completely contiguous, trackage property for a given industry, where can it be obtained in Des Moines?

Objected to as incompetent, irrelevant and immaterial.

240 Q. Where is such a tract of ground available?

A. I think it is absolutely impossible to obtain it if it is similarly located.

Q. What do you mean by similarly located?

A. I mean served by the same roads, the same approximate distance from the financial center.

Q. Suppose you wanted adequate track facilities where can you obtain it?

A. You could obtain track facilities south of Elm in the property owned by the Hubbel estate, but not by purchase.

Q. I mean by purchase?

A. I don't think it could be obtained at all.

Q. What is the attitude of persons requiring trackage property with respect to leasing or buying.

A. It is very difficult to float a bond issue on leased ground. It is desirable——

Q. Is there any demand for leased property to the extent there is for purchase, what is the fact about it?

Objected to as immaterial.

A. There is demand for leased property but the demand for leased property is made almost entirely by those who have not financial standing to float a bond issue, and have not enough money to buy property.

Objected to as incompetent, immaterial and irrelevant.

Q. You speak I take it from your observation and experience in the matter?

A. Yes, sir.

Q. You have referred to the value of the gas property as of the first of this year. What is the fact as to whether or not there has been any depreciation or appreciation since that time?

241 A. That is a matter to which I have not given close consideration. There has unquestiojably been some increase of business property in Des Moines, every piece of property in Des Moines has increased in six months.

Q. You can't say there has been any depreciation?

A. Been no depreciation but has been a definite appreciation of some amount.

Cross-examination by R. O. BRENNAN, Esq.:

Q. You have been more or less active in the so-called booster movement and spirit in Des Moines the last four or five years have you not?

A. Yes, sir.

Q. And you were president of the Commercial exchange?

A. Yes, sir.

Q. And are now at this time?

A. No, sir.

Q. How recently were you connected with the Commercial Exchange as its president?

A. Up until December of last year.

Q. You have developed certain territory in West Des Moines, built up additions to the city have you not?

A. Yes, sir.

Q. About how many of those additions?

A. Our largest addition was Middlesex Addition consisting of forty acres between Thirty-first and Thirty Fifth streets and between Woodland and Center. Another section was an addition called Kauffman Place of twelve and three quarter acres, from Thirty-first to a block west of Thirty-eighth between Cottage Grove and University. We have handled a large amount of prop-
242 erty in Marquis Addition which we handled although we did not plat it.

Q. Your principal holdings are in West Des Moines are *you* not?

A. Largely.

Q. Do you have any holdings in east Des Moines?

A. Yes, sir.

Q. What part of east Des Moines?

A. From a quarter to half a mile north of the Jewish Cemetery.

Q. Residence property?

A. We have property we platted this year, suburban property, acreage property.

Q. Have any business property in east Des Moines?

A. No, sir. We have a couple of dwelling house properties over——

Q. But no business property?

A. No.

Q. It is your judgment is it Mr. Kauffman that within the past ten years there has been an extraordinary increase in values of real estate in the city of Des Moines?

A. Been a very marked increase.

Q. Well it has gone as high as three to four hundred per cent in that time in your judgment?

A. In a few rare instances gone that high I think.

Q. What would be the general average for the ten years?

A. Oh, the general average would be from fifty to two hundred per cent.

Q. That would be extraordinary wouldn't it?

A. In some respects it might be considered extraordinary, but in many other respects that advance was anticipated.

Q. What was this property worth ten years ago in your judgment?

A. I don't know.

243 Q. Have you any idea?

A. Not very much of an idea.

Q. Can you approximate its value?

A. I don't think that I could without going into it at length giving it a good deal of consideration.

Q. Has it increased two hundred per cent in ten years in value?

A. It is difficult to answer that question because ten years ago that property might have been considered almost worthless.

Q. Well was it so considered?

A. Pretty near so I guess, yes. Twelve or fifteen years ago, it certainly was not considered of any great value.

Q. Do you know what that property cost originally?

A. No, sir; I do not.

Q. That is the gas company, how much was paid for it?
A. I haven't any idea.
Q. Never have inquired into that?
A. Never have inquired.
Q. Counsel has directed your attention to certain parts of the city and he has asked you to tell about the values of real estate along west Walnut.
A. Yes, sir.
Q. You have fixed Sixth and Walnut as the heart of the business section of the city in West Des Moines?
A. I fixed Fifth and Walnut as the financial center and Sixth and Walnut as the summit of value.
Q. The financial center at Fifth and Walnut.
A. Yes, sir.
Q. Why do you fix Fifth and Walnut as the financial center.
A. I mean by financial center that Fifth street has always been in my experience and is still the principal street in the city
244 of Des Moines where are located the offices that transact the greater amount of business aside from the retail and jobbing and professional business that is transacted in the city of Des Moines. There is one bank at the corner of Fifth and Walnut, there are banks east, another bank north and hotels and depots and it is the financial center.
Q. The Citizens' National and Des Moines National banks are at Sixth and Walnut?
A. Yes, sir.
Q. The Fleming building is Sixth and Walnut?
A. Yes, sir.
Q. The Citizens' Bank Building?
A. Yes, sir.
Q. The Utica?
A. Yes, sir.
Q. The Securities building on Seventh?
A. Yes, sir.
Q. And the business has been going west?
A. Yes, sir.
Q. Younker Brothers are at Seventh street, Seventh and Walnut?
A. Yes, sir.
Q. And the business has been gradually going west for a number of years?
A. The city has been growing and has been expanding in the only open direction but business has not been leaving the older sections of the city.
Q. You say as you approach the river going east on either Walnut or Locust street that the prices gradually decrease?
A. Yes, sir.
Q. Until you come to the west end of the Coliseum building?
245 A. Yes, sir.
Q. Is that true immediately east of the Coliseum build-

ing, do they still decrease or do they stop at the west side of the Coliseum building?

A. No, sir; at the bridge east Locust street property between there and the Northwestern tracks you can't say it increases all the way from east to west or from west to east. The properties at the river and the Northwestern tracks move over on the east side out to the unimproved properties.

Q. The peak load is at Sixth and Walnut?

A. Yes, sir.

Q. And low tide down at the river bank at the Coliseum building in west Des Moines?

A. Yes, sir.

Q. What is property worth per front foot on Walnut street and on Locust street near the Des Moines river?

A. Property in Walnut street near the Des Moines river is worth approximately, that is property on Walnut street is worth in the neighborhood of $800 per front foot, exclusive of the building.

Q. Down on Walnut street what is it worth?

A. That was Walnut street I answered.

Q. On Locust street?

A. Locust street properties run down as low as three or four hundred dollars.

Q. The factory district of Des Moines is located where, that is the so called factory district?

A. I have never heard that term used, the so called factory district.

Q. Never heard the so called factory district developed by
246 Mr. Hubbell in southwest Des Moines?

A. I have always heard that referred to as the flood district.

Q. He has attempted at least to develop it as a manufacturing district the last few years.

A. He has attempted to put some use to the property and he has attempted to give unusually favorable leases for a term of ten years with a continuance of the lease at terms favorable to him to establish a value, made every effort he could to establish a value to that property and has succeeded very well.

Q. Where are the manufacturing interests in Des Moines located, what part of the city?

A. Located principally along the tracks of the various railroads entering Des Moines from Fifteenth street or from Seventeenth street east to east Fourth or Fifth street and then jumping a mile or mile and a half east into what is known as the packing house district, and starch works district, the distillery, and some factories, being developed up on the north and south line of the Short Line, and of the Great Western.

Q. Isn't it true the principal manufacturing center is in West Des Moines and not in east Des Moines, isn't that true and just as you have said ten years ago the property of the gas company was practically worthless?

A. I would not say on either side was the principal manufactur-

ing district or principal industries. We have very large institutions on both sides of the river and a great many on each side.

Q. What large institutions have we in East Des Moines and where located?

A. The packing house is the largest.

Q. That is located where?

247 A. Located about a mile and a half east of the property under consideration.

Q. And the property there you think, the packing district there is a manufacturing district of the city?

A. Yes, sir.

Q. And one that would compare favorably as to trackage location with the so called factory district in west Des Moines?

A. It has trackage which will both receive and deliver freight on a favorable basis.

Q. Well as I understand you, any manufacturing establishment which is located on a railroad has the advantage of the Des Moines Terminal Company taking care of cars placed on the siding so being located on the railroad is all that is necessary?

A. I think the question of being located on more than one railroad enters into it, the question of competition.

Q. If the Des Moines Terminal Company will take care of cars, and place them on the siding that is all they need.

A. All they need, but the question of expense for that service enters into it largely as to forming a value of the trackage.

Q. Do they charge for that service?

A. In some instances.

Q. In how many instances?

A. I don't know.

Q. You would say would you not that property in the vicinity of the packing house and where the old distillery was is as valuable as property near the Des Moines Gas Company's works would you not?

A. I should certainly think not.

Q. What would be the difference?

A. About two miles.

248 Q. I mean in value or price?

A. About the same value you would get in going two miles west of the west business center of Des Moines out Grand Avenue, decrease about that proportion.

Q. What would be that proportion?

A. Oh several hundred per cent.

Q. You have said there is a jump after coming to east 4th and east 5th street- then there is a jump in the factory district until you get out about 17th street?

A. Yes, sir.

Q. Between those points what business is carried on?

A. Practically none except switching. The property is almost entirely controlled by yards and their crossings.

Q. Railroad yards?

A. Yes, sir.

Q. What would you think the property would be worth in the vicinity of the packing house located on the railroads?

A. Oh that property would be worth, vary in price from $500 to $1,000 an acre and some of it possibly higher.

Q. Five to $800 an acre?

A. Five hundred to $1,000 an acre.

Q. Do you know how many acres was occupied by the Agar Packing Company with its buildings?

A. I do not.

Q. And manufacturing establishment?

A. No, sir.

Q. Do you know at what price that property was sold recently?

A. No, sir.

Q. Do you know of any trackage property having been sold or offered for sale in east Des Moines?

249 A. Yes, sir.

Q. Where?

A. I know of one piece of trackage on east 19th street and the Rock Island tracks.

Q. How much?

A. That is for sale, there is a piece of five acres for sale at $3,500, $700 per acre.

Q. East 19th and Vine street-?

A. East 19th and the railroad track makes a turn, it cuts across one corner of this tract. I don't know what the east and west street would be. It would be south of Vine.

Q. Have you sold any properties on east Court Avenue from the river to Fifth street at any time?

A. No, sir.

Q. Have you known of any sales within the past year on that street?

A. Yes, sir.

Q. Where?

A. Northeast corner of First and Court Avenue 132 feet square with buildings which were practically worthless sold for $27,000.

Q. How much frontage was there?

A. Slightly in excess of $200 a front foot.

Q. That is on the northeast corner of First and Court Avenue?

A. First and Court Avenue.

Q. That is the old Boehler property?

A. Yes, sir.

Q. What other properties have been sold over there the last year?

A. I don't know of other actual sales. I know of other values, but I don't know of any other actual sales.

Q. Do you know of any properties that have been sold on Vine street from First street to Fifth street?

250 A. Yes, sir.

Q. Where?

A. The southeast corner of Third and Vine.

Q. Southeast corner. When was that sold?

A. 132 feet square was sold this year, this year or late last fall. Within the past year at any rate.

Q. How much was paid for that property?

A. $8,500.

Q. How far is that from the manufacturing plant of the Des Moines Gas Company?

A. That is three blocks from First street and from the river bank. Be about two blocks and a half from the average center of the Des Moines Gas Company's plant.

Q. Immediately east?

A. Immediately east.

Q. Do you know of any other properties in that vicinity which have been sold or exchanged?

A. I don't think I know of any exchanges.

Q. Within the last year?

A. I don't think I know of any exchanges, there was one sale of a property I think located on the corner of Third and Elm I believe 66 by 132.

Q. Did it face Third street or Elm street?

A. That I don't know.

Q. Do you know how much it sold for?

A. I don't know the exact figure, it sold for a ridiculous sum and that is all I carried in my memory, that it sold for a ridiculously low price.

Q. What was that price?

A. I don't remember exactly. I think it was a little over $3,000.

251 Q. How far is that from the gas works?

A. About three blocks or three blocks and a half from the average center of the gas company plant.

Q. It makes some difference does it not in the value of property when it is four or five blocks away from the financial district as you call it, or financial center, it makes considerable difference in the value?

A. In the value, yes.

Q. And property which was situated on Court Avenue and on the east side of the river and between railroads was not regarded and is not regarded very valuable is it?

A. Yes, sir.

Q. In East Des Moines?

A. Yes, sir.

Q. When did it commence to increase in value?

A. The last two or three years, the last five years, or last seven or eight years, especially the last few years.

Q. You have said about ten years ago this property would be considered as practically worthless?

A. That is a figurative term. I don't know the value, I meant figuratively compared to the present value.

Q. It had the same trackage at that time, the Rock Island railroad was there ten years ago at that point?

A. Yes, sir.

Q. And Keokuk and Des Moines?

A. Yes, sir.

Q. And Des Moines Union tracks and Great Western tracks, all the tracks that are there now?

A. The trackage facilities are practically unchanged with the exception of possibly some different arrangements with the terminal.

252 Q. Can you tell the court of any large manufacturing institution or any large warehouse or storage house within a radius of two or three blocks of the Des Moines Gas Company's works built within the past ten years?

A. The Farley-Letcher & Company.

Q. What is the character of their business?

A. Mill work.

Q. Where is their factory located?

A. On Third and Vine, Fourth and Vine.

Q. Did they buy this property which was sold for $8,500?

A. Yes, sir.

Q. That is the property you speak of?

A. No, sir.

Q. I say did they buy that property?

A. Yes, they bought that property but not the property referred to a few moments ago.

Q. Do you know how much frontage they got?

A. I don't know the exact size of the property.

Q. Do you know what they paid for the property?

A. I do not.

Q. Did you make any inquiries?

A. Yes, sir.

Q. Were you able to find out?

A. Found out and had definite information.

Q. What was it they paid?

A. I have forgotten. I have the information in the office. My remembrance of it is $35,000 for the building and ground.

Q. What kind of a building is on the lot?

A. They have a two story building that is a very good building, it is a shell, a very good shell.

253 Q. What was the construction of the building?

A. It was brick walls with combustible floors and unprotected iron columns inside.

Q. Veneered walls?

A. Solid brick walls as I remember.

Q. Two stories. You don't remember the frontage that they had, the dimensions of their property?

A. I don't remember the frontage.

Q. You think that sold for in the neighborhood of $35,000?

A. That is my impression, that is my reme-brance. I have that information in my records in the office.

Q. Now what other factories in that vicinity?

A. Des Moines Incubator Company, Des Moines Manufacturing and Supply Company, Dempster Manufacturing Company.

Q. The Des Moines Manufacturing & Supply Company is First and Court Avenue?

A. Yes, sir.

Q. Been there for a good many years?

A. Yes, sir.

Q. Where is this incubator company?

A. On Third street.

Q. That Des Moines Incubator Company has been in business there 12 or fifteen years has it not?

A. I think they have been in business about twelve years, possibly that.

Q. Do they have any substantial buildings in connection with their manufacturing establishment?

A. Not many.

Q. They haven't any building of steel or brick construction have they?

A. No, sir; I think not, nothing of any value.

254 Q. The Des Moines Manufacturing & Supply Company has been in business at their location for at least twenty years has it not, twenty-five years?

A. For twelve to fifteen years I know of, I think longer.

Q. Now can you tell the court what factory of any consequence where they have erected and constructed building of either steel or brick construction or of any warehouse or storage house that have been located and constructed in that vicinity within the past five years?

A. The Advance Thresher Company erected a very good warehouse. The Nichols & Sheperd Company erected a warehouse and as I said the Farley-Letcher people, the Farley-Letcher people have one of the biggest factories in the state at Dubuque and this one here will be made so.

Q. The Advance Thresher Company have been in business more than ten years over there?

A. No, sir.

Q. Nichols & Sh-perd have been?

A. Yes, sir.

Q. Been there more than ten years?

A. Been about ten years, possibly eleven or twelve, the Advance Thresher has not been there ten years. The Mason Motor Car Company erected a factory, they later moved to Waterloo.

Q. So that is out of business?

A. Yes, out of Des Moines.

Q. They removed their factory to some other place?

A. Yes, sir. There is very little opportunity for any factory to get in that section on account of the ownership of the ground

255 there.

Q. On account of the net work of railroad tracks through there, isn't that true? The Rock Island railroad practically occupies Vine street doesn't it?

A. That is largely true, but the net work of railroad tracks commences east of Sixth. The ownership of the ground is such that it

is not available for purchase west of the property under consideration to practically Sixth stre-t.

Q. Go south of Court Avenue half a block and you strike two or three railroad tracks there, the Great Western, Des Moines Union, and Des Moines & St. Paul have a net work of tracks.

A. In fact the Des Moines Union tracks.

Q. Three or four sets of tracks there?

A. No, sir.

Q. How many?

Q. I think two.

Q. Just a few feet south of that you strike the Rock Island main line right of way?

A. A little over half a block you strike the Rock Island main line double track.

Q. Any switches turning out either side between the Des Moines Union and Rock Island?

A. The Des Moines Manufacturing Company have a switch to the Rock Island, but I think that is the north side of the track.

Q. Immediately south of the Rock Island right of way you strike what is called the K. D.?

A. Yes, sir.

Q. On Market street?

A. Yes, sir.

Q. How many tracks on Market?

256 A. One track.

Q. Any turnouts or switches there?

A. I think a switch there.

Q. How many?

A. One I think.

Q. Where is that switch located?

A. I can't give you definitely the location.

Q. Then the Burlington?

A. Yes, sir.

Q. And the Wabash?

A. I think the Wabash comes in over the Des Moines Union.

Q. The Burlington has its tracks down there?

A. Yes, sir.

Q. So that all the main railroads entering Des Moines with the exception of the Northwestern, their tracks run parallel to each other and cross the Des Moines river?

A. Yes, practically all.

Q. And they enter either the Rock Island station or Des Moines Union station?

A. Yes, sir.

Q. Of course the Chicago, Milwaukee & St. Paul that comes in from the west don't go on the east side of the river?

A. Yes, sir.

Q. The Northwestern also has its track running north and south on Walnut street and Court Avenue.

A. Yes, sir.

Q. And extending south to what point?

A. Running south to I believe Elm.

Q. Sp that all of the territory in east Des Moines lying south of Court Avenue and between the river and say east 20th and
257 south to Elm is practically a net work of railroad tracks and yards and switches, isn't that true?

A. No, sir.

Q. Well to what extent is it not true?

A. It is not true from the river bank to east Sixth street. The net work of tracks commences at east Sixth tracks where the railroads begin to cross each other and to branch in either a southeasterly direction or northeasterly direction.

Q. To what extent is the property aside from that occupied by the railroads proper or their rights of way, to what extent is it owned by the railroad companies?

A. Very largely. There is very little available for purchase, held by the railroads for their own use.

Q. Even on Market square over there, set aside for market square is used for railroad tracks?

A. I guess they have copped out part of that market square.

Q. Isn't it pretty hard to get in there without having to cross railroad tracks, take the Des Moines Gas Company a track on one side of the Rock Island and the other side the K. D.

A. Yes, sir.

Q. It is also in among railroads?

A. Yes; that is what one wanting property requiring large freight must get.

Q. You have said it did not make much difference in Des Moines having got the Des Moines Terminal Company, they will take care of the cars?

A. I have not said that.

Q. You said that in substance?

A. I said it made a great difference as to whether or not a piece of property was served by one road or served by other roads
258 so it had competition as to railroads.

Q. If you was on a railroad you would have no difficulty in having your cars transferred to your place of business?

A. You can have them transferred to your place of business, provided you have the price.

Q. Didn't you say it was only in rare instance where it was required, in a majority of cases there was no charges?

A. I said in certain instances there was a charge. You asked me how many and I said I didn't know.

Q. In placing your valuation upon the Des Moines Gas Company's property, Mr. Kauffman, did you consider the property lying along the bank of the Des Moines river as belonging to the company?

A. Yes, sir.

Q. Considered that as their property?

A. Yes, property in Block T.

Q. Did you make any investigation as to the legal title of that property?

A. I did not.

Q. You just assumed it belonged to the company?

A. I assume it belongs to the company.

Q. You also assumed because the company was in possession of these alleys that were vacated th- they also belonged to them?

A. I was assuming they had the use of it. I didn't inquire. I don't know the legal process of vacating alleys, I don't know how they vacate.

Q. In placing your valuation upon the entire property of $223,670 did you make any allowance from the fact that the company has but the use of the alleys, not the owners of the fee.

A. I considered that they had practically permanent use and permanent use is the same as ownership.

259 Q. So you treated the alleys the same as the balance of the prop- in making up your valuation?

A. Not the same as the balance of the property, I considered certain property there in fee simple. I didn't consider the alleys as to whether or not they were in fee simple, merely assumed they had the permanent use of these alleys from the fact they had been vacated.

Q. Suppose the city should undertake to re-occupy these alleys and streets over there, how much would you want to deduct from the $223,670 on account of that?

A. It is entirely a question of what division you would make in the property, if it would be for the use now existing, it would be damaging to run alleys in through that property and prevent the gas company from using it, prevent the present occupants from using them. But the property can be handled on a basis and maintain the same values on the basis of blocks, half blocks and probably quarter blocks. If it is handled to the small sized lot as a quarter block which I think it can be, and still maintain the same total value by using the same total of various quarter blocks, and still maintain the total value placed on the property it would make practically no difference because you have got to cut alleys through any way.

Q. You are considering you might take that property with the alleys re-established and develop it to different purchasers and get the property owner the same amount of money, that is what you mean?

A. I mean to take that property as it now stands——

Q. Take that property as it now stands and considering your valuations with these alleys re-established and opened up there, how much deduction would you make, if any, from the values

260 you have *have* placed on that property.

A. My value is not made for the use and occupancy of the Des Moines Gas Company made on the property irrespective of whether the Gas Company occupy it or not.

Q. When you place these values of $223,670 you placed that upon it for general commercial purposes did you?

A. For jobbing, manufacturing and warehouse purposes, distributing purposes, purposes requiring a block of ground of a certain size within easy access of the main business centers of the city of *the city of* Des Moines and having freight facilities.

Q. You didn't take into account the purposes and uses that the Des Moines Gas Company was making of it?

A. I don't mean for the purposes of the Des Moines Gas Company's occupancy.

Q. Or what it is worth to them?

A. I don't know what it is worth to the Des Moines Gas Company except the Des Moines Gas Company is owner and have their property there and is valuable for them f-om the fact they have used it.

Q. Is it subject to overflow?

A. A part of it I think, small part only.

Q. What part is subject to overflow?

A. Lots 9 and 10, Block M.

Q. Where are those lots located?

A. Southeast corner Second and Elm.

Q. Did you allow anything for that?

A. For the overflow?

Q. Yes?

A. My valuation was very much lower there than on the other portions.

261 Q. What did you place as the value of these lots?

A. $9,900.

Q. Do you know how much they paid for them.

A. No, sir.

Q. Do you know when they were purchased by the Des Moines Gas Company?

A. No, sir.

Q. What do you use as your standard in arriving at $9,900 for these lots?

A. The general basis of depressing the preop-rty as you go further south. Crossing more railroad tracks, which takes you further away from the business center and gets you into lower ground and gets you in competition with cheaper stuff of the overflow district of the southeast bottom.

Q. Any other portion of this property that is subject to overflow?

A. I am not positive as to what portion of Block "B" overflows. I don't think Block B overflows. I would be positive on that. I think that Block B is approximately the same level as Block C and Block C is where the main factory is located and is not subject to overflow.

Q. Now Mr. Kauffman you made an affidavit in this case did you not when the application was made for a temporary injunction in which you placed a value upon the property of the Des Moines Gas Company.

A. I believe that I did.

Q. About how much of an investigation did you make prior to the time that you made that affidavit?

A. I don't remember the length of time I spent on it.

Q. When were you first asked by the Des Moines Gas Company to investigate its properties for the purpose of either making an affidavit in the case where the temporary injunction was in-

262 volved or in this one?

A. I don't remember exactly. I think it was approximately the first of December, but I am not definite.

Q. Prior to that time you had not given any special attention to the Des Moines Gas Company's property had you?

A. Oh only in a general way. I had not undertaken to make an appraisal of it before that time nor had not been asked to before that time or approximately that time. I was familiar with the conditions.

Q. Your activities were principally in west Des Moines, that is your personal activities with respect to real estate?

A. My personal activities have been wasting a good deal of time finding out about other people's deals as much as it has been handling my own business. My own business largely, the past year has been confined to suburban lots with the exception of one or two larger transactions.

Q. And in interesting jobbers and others to come into Des Moines and buy lots and locate?

A. Yes and to locate factories in Des Moines.

Q. Have you located very many in east Des Moines?

A. I can't tell you how many have located in east Des Moines?

Q. Most of them have been located in west Des Moines that have come here haven't they?

A. No, I think not. Possibly most of them located in West Des Moines than east Des Moines. I would not be sure of that.

Q. I mean within the last year or two?

A. That is what I refer to, I think possibly more located in West Des Moines.

Q. Outside of one firm you mention, located in east Des Moines two or three blocks from the gas works, you don't have in
263 mind any other?

A. The Silo factories are located east of the river, five of them all been in two years.

Q. Where are they located, in what part of the city?

A. From Highland Park down to close to the packing house and on Maury street.

Mr. BRENNAN: That is all of the cross examination.

Here the further hearing was adjourned until 9:30 A. M., to-m*k*rrow.

264 SATURDAY, *July* 15, 1911—Convened at 9:30 a. m.

All counsel for respective parties present.

Testimony on part of complainant resumed as follows:

B. F. KAUFFMAN, re-called on part of complainant for further re-direct examination, examined by Mr. Read, testified as follows:

Q. You were asked with respect to a sale of some property on East First and Court Avenue, do you recall that?

A. Yes, sir.

Q. How large a tract was that?

A. A quarter block, 132 feet square.

Q. Was it trackage property?

A. No, sir.

Q. You were also asked with respect to a sale of a tract on Third & Vine Street; do you recall that?

A. Yes, sir.

Q. Was that trackage property?

A. Yes, sir.

Q. How large a tract was it?

A. 132 feet square.

Q. Would that be a quarter block?

A. Yes, sir.

Q. Was the tract on Third & Elm to which your attention was called trackage property also?

A. I believe that is the property that I referred to as having been sold cheaply, and I don't know the exact location. I was under the impression it was a small 66 foot tract.

265 Q. With respect to the question of value and the desirability and use, does it make any difference whether the tract is large or a small one in that locality?

A. Yes, sir.

Q. What difference and in what respect?

A. Well, the question of quantity in any real estate, in any body of real estate, has a marked effect upon its value in a location such as this. You can have a quantity that is so small that it cannot be put to its highest available use.

Q. Take it in that locality, and generally in respect to trackage property, what is the fact as to whether there is a demand for small tracts or not?

A. The demand for small tracts is not so great as the demand for large ones. The use of a small tract cannot be put to so many uses as a larger tract.

Q. Is that a shopping district there at all?

A. Not at all.

Q. Are any stores or shops in that locality?

A. None at all.

Q. The demand is then for what sized tracts?

A. The demand would be from a quarter of a block up.

Q. Suppose there was a demand for a tract as large as two blocks or two blocks and a half lying contiguously, would that command a high price?

A. If there was competition among the purchasers for a sufficient number of that size tracts, it would affect the value so markedly that it would be beyond anyone's reach.

Q. Suppose there was a demand for a tract as large as the tract owned by the Des Moines Gas Company within the trackage district, and without going out to remote sections, would that com-

266 mand a relatively high price?

A. Yes, sir.

Q. In a general way, if there was a demand for a tract as large as that owned by the Gas Company, and the problem was to gather it up from individual ownerships and constitute it into one ownership, would that affect the price and value?

A. Very markedly. It might drive the price to double or three

times the figures given here; there is no limit to it. It might go double or three times the figures given here.

—. As I recall it, yesterday you said there were no tracts so large within the trackage district on *w*either side of the river?

A. That are available for purchase for anything like a reasonable figure.

Q. So that you think if the problem was to bring under one ownership so large a tract as that owned by the Gas Company it would materially affect the price?

A. Yes, sir, very materially.

Q. I believe you said it might increase it several times?

A. Yes, sir.

Q. Having in mind now your valuation placed on the Gas Company property, $223,000 and some odd dollars, if the demand was for so large a body as that segregated under one ownership, is it your judgment it would increase the price over that amount?

Objected to on part of defendants as being incompetent and immaterial.

A. Very materially.

Q. Take the same problem on the west side of the river and within the trackage area, and with reference to property that is available for purchase, what would you say as to the relative price of the property?

267 A. I understood your question to refer to both the east and west side. The answer would be the same.

Q. In answer to a question by Mr. Brennan you said that property in the locality of the Gas Company property ten years ago was practically worthless; what did you mean by that?

A. Mr. Brennan asked me previously to that what it was worth. I told him I had no definite idea and figuratively speaking it *it* was comparatively of no value, compared to its existing value.

Q. Property on the east side of the river, inside business property as well as other property has been relatively lower than property on the west side—what is the fact as to that?

A. I think as a general rule it has been.

Q. Now of late years, what is the tendency?

A. Of late years the east side has been picking up, increasing at a very rapid ratio. Certain parts of east Des Moines has increased, the demand has increased more rapidly than some sections in west Des Moines.

Q. I understood you to say that the available trackage property principally was confined to the district described by you in east Des Moines and also in west Des Moines.

A. Yes, sir.

Q. Outside of that is there any trackage property in large quantities, or any quantity?

A. Practically none. There is some trackage on the northwestern road.

Q. So then the problem is to obtain trackage property, you are limited to those two districts?

A. Yes, sir.

Q. The bottom land that is converted into trackage by Mr. Hubbell lays south of the area of the district you referred to?

268 A. Yes.

Q. That has been subject to overflow?

A. Yes, sir.

Q. And it only has such trackage facilities as may be afforded by the construction of the Belt Line or the Des Moines Union Railway?

A. Yes, sir.

Q. As controlled by Mr. Hubbell?

A. Yes, sir.

Recross-examination by Mr. R. O. BRENNAN:

Q. In your judgment, what property in Des Moines lies within the trackage area?

A. Commencing at East Sixth Street, following the lines of the Rock Island and Des Moines Union, and a block south of the Rock, two block- south of the Rock Island on the East side, and narrowing down as you run west to west Seventeenth Street.

Q. In other words, do you limit it to property located on the railroad tracks for switches?

A. Certainly.

Q. There is a considerable area in the northeast portion of the city which can be used for manufacturing purposes?

A. Yes, sir.

Q. For sites of that character?

A. Yes, sir.

Q. And there are large tracts of land in that vicinity, are there not?

A. Yes, sir.

Q. What is the land worth in the northeast portion of the

269 city along the roadway of the Chicago, Great Western and the Des Moines & St. Paul Railway Company?

A. From three hundred to four hundred dollars, up to as high as twelve hundred dollars.

Q. An acre?

A. An acre.

Q. Where is it worth $-,000 to $1,200 an acre?

A. Probably along the roadway of the St. Paul and the Great Western at the intersection of Walnut street and Locust and Grand.

Q. And as, you go north of the fair grounds, north of that district then it becomes cheaper?

A. There is no trackage north of the fair grounds.

Q. I mean north of there?

A. North of Grand Avenue, yes sir.

Q. Do you know where Ford Brothers' factory is located?

A. What do they manufacture?

Q. Engines and threshers?

A. I never heard of them.

Q. Do you know whether there is a line of manufacturing establishments up here as what is called the old stove works?

A. Yes, sir.

Q. What is the name of the firm?

A. There is the Wood Brothers Self Feeder Company.

Q. How large a factory have Wood Brothers at that point?

A. I cannot give you the dimensions.

Q. Do they occupy this building formerly used as the stove works?

A. Yes, sir.

Q. And what is ground worth out there?

A. It is a little bit difficult to answer that question for the reason that there is a certain amount of acreage property over there
270 that has been platted into lots—ordinarily acreage property is platted into lots with the idea of increasing its value, and that the sum total of the lots would be worth more than the acreage. In the case of the large amount of property platted into lots there, it has been depreciated and it is not worth as much as the original acreage, and it is rather difficult to tell.

Q. Well, if you were buying a tract of acreage out there, what do you think it would be reasonably worth on the market in Des Moines, if you were going to locate some factory site on it, what inducements would you offer to prospective manufacturer- as to the price of real estate in that part of the city?

A. Stating it generally, I believe the land occupied by Wood Bros. would be worth about $750 and acre.

Q. Do you know where the R. O. Stuttsman manufacturing establishment is located?

A. Yes, sir.

Q. About where?

A. On the northeast corner of the intersection of the Northwestern railroad and East Grand Avenue.

Q. And there are large tracts of land in that vicinity suitable for factory sites?

A. Yes, sir.

Q. What is the land worth in that immediate vicinity?

A. The land abutting on the railroad tract in that vicinity, is worth, as I have before stated, up to as high as $1,200 an acre, and I presume if the acreage was confined purely to the trackage and not confined to acreage lying in a body, it would run higher than that.

Q. Do you limit or qualify your testimony, to property
271 that is located on the main line of the railroad, in view of the terminal facilities that are afforded.

A. In estimating the value of trackage property I am not considering property not on a railroad track.

Q. Suppose it is accessible to a railroad?

A. *The* that depends upon its distance, and the custom of the railroad company furnishing switching facilities, whether they furnish them free or at the cost of the manufacturer.

Q. Take the property at the west end of the city, out near the

Shannon & Mott mills; there has been a tendency the past year or two to establish factory sights there by the railroads.

A. Yes, sir.

Q. And with switches and turn outs, and having sidings along the buildings?

A. Yes, sir; in some few instances. There has been a very great effort made to convert that property into trackage property, but it met with failure.

Q. Well, they have property some little distance from the main line of the railroad there which is accessible to the railroads by the construction of switches?

A. There are a few properties located in the section referred to that are abutting property, owned by Mr. Hubbell or the Hubbell estate, which is contiguous to the Des Moines Union Railroad. Mr. Hubbell can damage his own property and come through it and serve the people north of Cherry Street, and he has done that in the past in a few instances, but has discontinued the practice.

Q. Mr. Hubbell is president of the Des Moines Terminal Company which looks after the transfer of cars to these sidings?

A. I don't know really what his official title is.

272 Mr. GUERNSEY: I beg your pardon, Mr. Fred C. Hubbell is the president.

Q. It is true, Mr. Kauffman, that over here, say east of Seventeenth or Eighteenth Street in East Des Moines almost the entire length of the city there is a large area, open space of unoccupied property suitable for factory sites?

A. Some of it is suitable for factory sites but there are a great many drawbacks.

Q. And accessible to railroads?

A. There is a body of ground over there that lies contiguous to the railroad, small in area. There is a large body of unoccupied ground that is being rapidly built up in small dwellings, and there are serious disadvantages, particular disadvantages; there is absolutely no sewerage system east of Eighteenth street

Q. They have a ditch in there now that carries some sewerage?

A. No, I think not.

Q. But they are planning on that, and it is being agitated by the improvement leagues of East Des Moines, for the construction of a sewer system in East Des Moines?

A. Oh, it has been agitated for fifteen years.

Q. But it is a fact is it not, that there are large tracts of ground in East Des Moines in the vicinity to which your attention has been called, accessible to railroads and which are suitable for factory sites?

A. I would say, where there are large tracts of ground in East Des Moines in the location you refer to, they are not large tracts suitable for factory use. There are a few immediately adjoining the railroads that have not been sold off. Practically that entire district has been sold off in different lot sales during the past two years and it is now owned in small lots 25 to 50 feet in size.

273 Q. Haven't the commercial clubs of the city and the different organizations interested in bringing capital to Des Moines, held that out as an inducement to manufacturers, that there were plenty of factory sites in East Des Moines, especially in that vicinity to which I call your attention?

A. We are certainly holding out the fact that we have factory sites.

Q. And that they are principally located in that part of the city?

A. When it comes to that acreage, a factory that requires 8, 10, 12 or 15 acres, certainly yes. There are various classes of factories just as there are various classes of retail stores.

Q. If you wanted for a factory a couple of blocks, you would locate in East Des Moines?

A. That depends upon the access to the city of Des Moines.

Q. If you wanted to get them on a railroad and that is all they cared about, you would locate them in East Des Moines?

A. That is impossible for me to answer.

Q. I am assuming a manufacturing institution that would require about two blocks of ground and would want that ground accessible to a railroad.

A. If a manufacturing concern wants approximately two blocks of ground and they have determined that they want trackage then comes up the question what else do they want? Is it necessary that they are within easy hauling distance of the City of Des Moines? Is it necessary that they are within easy access of the postal service of Des Moines, etc.

Q. I am assuming a situation where they want two blocks of ground accessible to the railroads?

A. I couldn't answer that question unless you go further
274 with respect to their product and demands. If I wanted two blocks of ground on the railroad I would go where I could buy it the cheapest, if there was no other consideration.

Q. Is West Des Moines, what you call the flood district, that is the hydraulic addition, as it was called, opened up by Mr. Hubbell?

A. The hydraulic is new, but it is pretty good.

Q. Is that why you called it the flood district because it was in the hydraulic addition?

A. Yes, sir.

Q. As a matter of fact, all of the large warehouses and transfer houses are located in that part of the city?

A. No, sir.

Q. Take the International Harvester Company, where is it located?

A. It is located on Eighth Street, I think just south of the Des Moines Union tracks?

Q. And the Moline Plow Company?

A. I can't give you the exact location. The Moline Plow Company are approximately in the same location as the International, on Seventh.

Q. And the Hawkeye Transfer Company?

A. That is located on Fifth and Walnut.

Q. I mean the warehouse of the Hawkeye Company?

A. On Sixth Street.

Q. Do you know of their building on Seventh & Tuttle?

A. That is the Merchants' Transfer.

Q. Well, the Hawkeye too, on the corner of Seventh and Tuttle streets.

A. Oh, yes; there is a building there.

Q. And the White Line Transfer Company is located where?

A. That is on Fifth Street; all north of the hydraulic
275 district except the Hawkeye Building.

Q. Where are the Schmidt & Henry people located; aren't they in the hydraulic addition?

A. I wouldn't say as to that.

Q. Aren't they down on Eighth Street, between Tuttle and Eighth?

A. I don't know how far down they are.

Q. Do you know where the Globe Machinery & Supply Company's factory is located?

A. No, sir.

Q. Well, now, if the Smith & Henry Manufacturing Company have a large brick building down in the hydraulic addition, near the Hawkeye Transfer Company, that location down there is suitable for factory sites, is it not?

A. There is no question but what a man can go down there and build a factory, but as to the value of the site he has chosen, is the point in question.

Q. There are a lot of factory sites in that part of the city?

A. There is ground in that section of the city that is suitable for factory building, providing it is properly protected from the elements.

Q. Haven't they constructed dikes down there?

A. They have constructed dikes but have never had a test put upon them.

Q. Where the Des Moines Gas Company property is located it is subject to overflow, or was some few years ago, was it not?

A. Not some few years, it wasn't.

Q. Well, they have been filling in there for a series of years?

A. I think they have done some filling there.

Q. Quite considerable?

A. How much, I don't know.

276 Q. Before the filling was put in there it was subject to overflow?

A. I never heard of it being overflowed.

Q. In this so-called hydraulic addition they have constructed dikes to protect the property, and the Des Moines Water Company is located on bottom land, the pumping station.

A. I think the Des Moines Water Company is protected to some extent by dikes.

Q. They have constructed those dikes around its pumping station?

A. Yes, sir.

Q. And from the pumping station of the Des Moines Water Company, clear to the Raccoon river there is an open space, if properly diked and protected would be suitable for factory sites?

A. If raised to the proper level it would be probably suitable for factory district.

Q. Mr. Hubbell is endeavoring to attract persons engaged in manufacturing to that part of the city?

A. Yes, sir, by leasing them on long term leases, but not by the sale of the property.

Redirect examination by Mr. READ:

Q. Mr. Kauffman, your attention has been called to the various factories and warehouses in the trackage district in West Des Moines?

A. Yes, sir.

Q. To what extent is the available ground in that district already appropriated and in use?

A. The ground located similarly to the Moline Plow Company and the International Harvester Company, is practically all taken up, or is in the hands of owners, so that it is not available for purchase.

277 Q. So that if you had a demand or call for a considerable trackage of land, as much as two blocks, in that district, where could you find it?

A. It cannot be obtained. I do not believe it can be obtained at any where near a reasonable price.

Q. With reference to that condition, you speak of the price as being two or three times that which you fixed on the Gas property.

A. Yes, sir.

Q. Now, then if the problem was to obtain a similar tract in the East Des Moines trackage district, where could a tract as large as the Gas Company's tract, even two blocks be obtained in East Des Moines?

A. There isn't a tract similarly located in East Des Moines available at any price for purchase, owing to the existing ownerships.

Q. I wish you would take the map, exhibit 6, and indicate that part of the city to which Mr. Brennan called attention as having trackage property?

A. There is a tract of ground lying in East Des Moines flats, east of the north and south line of the Great Western Railroad, extending from the Des Moines river on the south to the city limits on the north, to a distance of probably four or five miles. The south portion of that property from Mowry Street and from the Wabash Railroad east of Twenty-fourth Street, with the exception of the tracks of the Burlington which are elevated, is all of practically no value for any purpose. There is a section which is cut by the railroads, especially the Rock Island, a portion of which property being good trackage property for factories requiring acreage tracts, rather than lot tracts, right here near the fair ground, but all the property north of the Rock Island as far north as Easton Boulevard has

278 now practically all been sold off in small tracts, lots of from 25 to 50 feet frontage, running from five to ten lots to the

acre, and small homes are being erected, largely residence property. North of Easton Boulevard there are a few acreage tracts still available, the majority of them however lie east of the north and south road, known as Delaware, at Easton Boulevard, about a block east of the tracks and continues about that distance until you get a mile north where the tracks come practically to the street; there is a strip of land lying on the east side of the street, good trackage property but quite low, being in general from two to twelve feet below the railroad tracks and there is a great deal of it wet and swampy land. On the west side of the tracks it is more largely built up as a dwelling house district and scattered dwelling houses throughout the entire district, and it also has a large amount of swamp land lower than the tracks, and the majority of it is lower than the public highway. That in general describes the property referred to in the *w*uestion which I understood Mr. Read to ask.

Q. Now, take that property as compared with the property lying where the Gas Company property is, and to what additional uses is the Gas Company property adapted?

A. It may be especially adapted for its present use. It is certainly adapted for jobbing and warehouse purposes.

Q. And the other property is not?

A. It is not. There are a large number of retailers who must have warehouse capacity within a very reasonable distance from the retail establishment. A jobbing house must be in the heart of the city, because there is a certain transient and retail trade coming in from the country to which they must be easily accessible.

279 Q. So that property so remotely situated as that to which your attention was called by Mr. Brennan is not adapted for warehouse and storage purposes?

Objected to on the part of the defendants as being immaterial.

A. Absolutely not.

Q. If you wanted merely factory ground, you might go out to Berwick or Bondurant?

Objected to on part of defendants as immaterial.

A. Yes, sir.

Recross-examination by Mr. R. O. BRENNAN:

Q. It is not necessary to have the gas works on Walnut Street?

A. I am not familiar with the use of the Gas Company.

Q. Now in stating that there is a great deal of ground in East Des Moines that is of no value, do you include in that area the ground formerly occupied by the Starch Company and the International Distilling Company and Agar Packing Company?

A. I have mentioned the property south of that as being not available.

Q. How far south?

A. South to the Des Moines river.

Q. From what point?

A. From the point you mention, the Agar Packing Company and the Starch Company.

Q. The Agar Packing Company have a large tract of ground there with buildings?

A. Yes, sir.

Q. Did have?

280 A. Yes, sir.

Q. And the National Starch Works occupy a large tract of ground down there with buildings?

A. Yes, sir.

Q. And there were other very good buildings of brick construction in that part of the city four or five stories in height?

A. There were other good factory buildings in that district; I don't know how high.

Q. I say, substantial buildings and plenty of trackage facilities?

A. Yes, sir.

Q. And immediately north of what is called the town of Chesterfield there was laid out at one time an addition known as Manufacturers Addition?

A. I believe so.

Q. And the purpose of opening that addition was to have dwellings contiguous to this factory district, and lots were sold; in other words all that portion of the city down there to which I called your attention was laid out and was used to some extent with the idea of converting it into a manufacturing section of Des Moines.

A. There is no question but what that part of the city you are referring to now, the property of the Starch Works, the Agar Packing Company, and continuing north to the Rock Island line, is the best trackage property in East Des Moines, and is a class of property one would seek requiring a large number of acres for practical use.

Re-redict examination by Mr. BRENNAN:

Q. For factory purposes alone?

A. And for the class of factories that require acreage, several acres rather than blocks or quarter blocks.

281 Witness excused.

Time for attendance three days.

MACK OLSEN, being duly sworn on part of complainant, and examined by W. L. Read, Esq., testified as follows:

Q. What is your name?

A. Mack Olsen.

Q. Where do you reside?

A. In Des Moines.

Q. How long have you lived in Des Moines?

A. Twelve years.

Q. What is your business now?

A. Real estate.

Q. How long have you followed it?

A. Eight years.

Q. What kind of real estate have you handled?
A. Des Moines city property.
Q. Residence or inside or business property?
A. All classes of Des Moines property.
Q. To what extent have you handled Des Moines business property.
A. Why I have been instrumental in selling and negotiating sales of several pieces each year.
Q. Involving considerable amounts of money?
A. Possibly $200,000 a year.

Q. To what extent have you followed the course of prices
282 and values in real estate in Des Moines?

A. As closely as possible.
Q. What efforts have you made?
A. I have been following the transfers of property, newspapers and reports and talking with the parties where possible, and conversations with brother agents in the business, and any available source I could find as to the transfers of the different property.
Q. Do you belong to any organization or association?
A. Yes, sir.
Q. What?
A. Commercial Club and Real Estate Exchange.
Q. What are their agencies?
A. The Commercial Club is a business organization to promote the business interests of Des Moines. The Real Estate Exchange is an organization of the leading real estate men to raise the standards and conduct of the real estate business in Des Moines.
Q. What has been the trend of prices of real estate in Des Moines for a number of years?
A. It has been upward.
Q. To what extent is that true?
A. Real estate in the last five years as a general proposition has increased from fifty to one hundred per cent.
Q. Of course there are exceptions to that?
A. Yes, sir, there has been times when the increase has been four or five hundred per cent and possibly larger.
Q. As compared with the property in West Des Moines, what has been the value and price of real estate in East Des Moines, referring now to business property?

A. I think the increase has been as much proportionally
283 in East as in West Des Moines.

Q. Has anything occurred to bring East Des Moines property into favor, if so, what?
A. There has been several things to bring East Des Moines property to the front, primarily the large increase of sales in residence properties on the east side, which has brought largely an increase in population—people looking for cheaper residence property. This increased the retail demand. Then there has been a great deal of activity by the East Des Moines Commercial League, cleaning up and raising the standards on the east side, raising the grade on East Locust Street, building the city hall on the east bank of the

river, the civic center proposition which is now about two-thirds completed, the new Locust street bridge, the Walnut street bridge, the proposed raise of East Walnut street grade, the agitation for increased grounds around the Capitol and improvements to the State Capitol Building, the building of the State Historical Building, the increased preparations at the state fair grounds, the beautifying of these grounds and increasing of them, the added popularity of the parks on the east side; and there have been a great many others I could possibly mention to raise the standard and increase values on the east side of the river.

Q. You have not referred to the construction of the buildings on the bank of the Des Moines river; has that had any influence in that direction?

A. I referred to that in speaking of the civic center improvements which includes the buildings on the east and west banks of the river, and carrying out by that the beautification scheme and thus practically doing away with the dividing line between the two sides and making it more of a whole city.

284 Q. When were the buildings constructed on the banks of the river?

A. The city hall is just being completed on the east bank, and on the west bank the Coliseum has been built possibly eighteen months. The City Library possibly three years. The Post Office has been completed within a year; the improvements to the Des Moines Electric Light Plant are now under way. The idea of that improvement is to take away the ugliness of that and beautifying the grounds and carry out the beautification scheme of the civic center.

Q. What is the fact as to whether there has been a growth in the commerce and business of Des Moines in the last few years?

A. That has been very marked, especially in the last five years. The smaller factories have doubled and quadrupled; the jobbing houses have all had a treme-dous increase in the volume of their business; the Des Moines banks have grown financially and the business interest- of Des Moines have shown a tremendous increase. The insurance business, one of the largest items, has shown a tremendous increase, so large in fact as to now rank ahead of Hartford, Connecticut.

Q. Do you know where is located the property of the Des Moines Gas Company?

A. Yes, sir.

Q. I wish you would refer to the plat marked Exhibit 5 and describe it.

A. It consists of Lots 3, 4, 5, 6 and 7 in Block T. Lots 1 to 10 inclusive in Block C. Lots 3 and 4 in Block K; Lots 3 to 10 inclusive in Block B, and Lots 9 and 10 in Block M.

Q. What is the general character of that ground and for what purpose and uses is it available?

A. It is particularly adapted for jobbing, warehouse and
285 storage and certain classes of manufacturing purposes.

Q. What classes of manufacturing purposes?

A. Manufacturing establishments who do a jobbing business, or where their output is more or less limited as to bulk, and classes of manufacturers who can afford to pay high rents or high values, to which closeness to the business centers and availability to depots and business houses is desired.

Q. What are the features and characteristics that render this property available for such uses?

A. Its closeness to the business district, the paved streets leading to it, the ample railroad facilities, its location in regard to the river, giving plenty of light space for buildings, in the absence of certain classes of factories such as packing houses, rendering works or things of that class.

Q. What is the fact as to the existence of a demand for properties for such uses in Des Moines?

A. There is a very strong demand for that class of property.

Q. Has such demand been accentuated in the last few years?

A. Yes, sir.

Q. Owing to what?

A. To the activity of the Greater Des Moines Committee and the lines of advertising carried in the papers, and the growth of the knowledge of the manufacturers of this city as a distributing center, being in the heart of the greatest agricultural center in the world, where the per capita wealth is great, excellent railroad facilities, and for numerous other reasons.

Q. In what part of the city are such properties to be found. I refer now to the trackage property suitable for such uses as you have described?

A. There is a small district right where the Gas Company
286 is located, between there and Court Avenue, and then it extends on the west side beyond the south side of Court Avenue from the river west to about West Twelfth and Mulberry, and extending south possibly three blocks.

Q. There is a considerable tract of land south of the ground you have referred to owned by Mr. Hubbell or the Hubbell Estate; what do you say as to that property?

A. That possibly could be made available for a good many of these classes, but the main objection to the property is it is owned by the Hubbell Estate.

Q. What objection is there to that?

A. It is owned for lease and not for sale.

Q. To what extent has such property been already appropriated within this district.

A. It has practically all been taken up for this purpose. There is a few tracts 66 feet or 132 feet square which have come back on the market, the people occupying them, outgrowing them, or something of that kind; but they are very limited.

Q. Are you speaking of the West Des Moines district or East Des Moines district?

A. Both districts.

Q. Suppose there were a demand for say two blocks of ground within this district lying contiguous, is that obtainable in the market?

A. No, sir; not as a market proposition.

Q. What do you mean by that?

A. You said, could it be obtained. Of course it would be possible by paying an exorbitant price, but not in the regular line of business.

Q. That is, as all things are possible by the use of money?

A. Yes, sir.

287 Q. You referred to that to indicate that the prices would be exorbitant and prohibitive?

A. Yes, sir.

Q. In East Des Moines are there any tracts so large as the Des Moines Gas Company's property, or even so large as two blocks within that district?

A. Not with the advantages I have set forth.

Q. I said within that district?

A. No, not within that district.

Q. You referred to a more remote part?

A. Yes, sir.

Q. Have you made an investigation of the property of the Des Moines Gas Company?

A. Yes, sir.

Q. When did you make such investigation?

A. I made two; one in March and I was again down there day before yesterday.

Q. You have made an investigation for what purpose?

A. To arrive at the value of this ground.

Q. How long have you been familiar with the property, in a general way.

A. Possibly ten years.

Q. So that this investigation was a particular investigation, I take it, with the view to fixing an appraisement?

A. Yes, sir.

Q. To what extent have you acted on appraisement boards for appraising real estate, Mr. Olsen, in Des Moines?

A. I have been a witness in court——

Q. I don't care to have you give the particulars.

A. Oh, a great deal.

288 Q. Properties in both east and west Des Moines?

A. It has been confined, outside of residence property, to west Des Moines.

Q. Business property in West Des Moines?

A. Yes, sir.

Q. Do you know what was the fair, reasonable market value of the property of the Des Moines Gas Company, taken as a whole, and exclusive of any buildings or improvements on it, on or about the first of January of this year?

A. Yes, sir.

Q. What was its value in your judgment and opinion?

A. $232,400.00.

Q. What in your judgment and opinion is the fair reasonable market value at this time?

A. The same.

Q. It has not then diminished?
A. No, sir.

Cross-examination by Hon. H. W. Byers:

Q. When Mr. Olsen, was your attention first called to this property for the purpose of appraisement?
A. Along about the first of March.
Q. Who called your attention to it?
A. Mr. Frank Kauffman.
Q. And for what purpose did he call your attention to the property?
A. He asked me to make an appraisement.
Q. Did he tell you what the appraisement was for?
A. Yes, sir.
Q. And what did he tell you it was for?
289 A. He told me he wanted to make an appraisement of this property for the Gas Company.
Q. Did he tell you what the Gas Company wanted with the appraisement?
A. No, sir.
Q. You know, did you not, that it was for use in this gas controversy with the city?
A. Yes, sir.
Q. You knew when you went out to make the appraisement that the appraisement was to be used by the Gas Company for the purpose of supporting the charge that they make in Des Moines against the consumers and general public for the use of gas?
A. I supposed that was the reason.
Q. You knew that and you knew too when you went out to make the appraisement and when you were asked to make it that the rate charged for gas, the reasonable rate charged for gas to the consuming public here would depend some upon the value that they put upon this property?
A. I expect so. I didn't pay any particular attention to it; simply appraised it as a business proposition.
Q. You knew too, did you not, Mr. Olsen, at the time you made the appraisement that this controversy was pending between the Gas Company and the City?
A. Yes, sir.
Q. And you made your appraisement with all that in your mind?
A. I don't know as I took anything of that kind into consideration. I went out and appraised it what I reasonably thought it was worth.
Q. And you told Mr. Read or started to tell him that you were often upon the witness stand in cases where the question of value was involved?
A. Yes, sir.
290 Q. And that has always been in cases and on the side of the case that required a good, stiff valuation?
A. It has only been in one case of that kind.
Q. What was that, this viaduct case?
A. Yes, sir.

Q. And the other cases were cases where the question of value was involved between the city on one side, largely and individuals or corporations on the other side?

A. Just the one case.

Q. That was the viaduct case?

A. Yes, sir.

Q. You are a member of the Booster Committee, so-called?

A. Yes, sir.

Q. And have been an unusually active man*d*?

A. Yes, sir.

Q. And have been so during nearly all this period when you say there has been a very marked increase in values in Des Moines?

A. Yes, sir.

Q. The truth is that much of the increase—and I do not ask this question for the purpose of throwing any bouquets—the truth is a large part, in fact the largest part of the increase in the values in property in Des Moines is due to the activity of a few gentlemen who have been pushing and boosting Des Moines for the last three or four years; that is true, is it not?

A. It is true with qualifications.

Q. Well in a general way it is true?

A. I wouldn't say that. The boosting proposition simply opened the eyes of the residents as well as people coming here as to the actual value.

Q. This increase, however, has grown out of the move-
291 ment of the boosting committee, started and carried on for the last three or four years?

A. Yes, sir.

Q. When that movement began property was at a very low ebb in this city?

A. Yes, sir.

Q. All kinds of property?

A. Yes, sir.

Q. In both East and West Des Moines there was little movement along any line in the way advancing prices; that is true, is it not?

A. Yes, sir.

Q. When was the boosters' committee organized?

A. About five years ago.

Q. It had its origin about five years ago?

A. Yes, sir.

Q. And it has been active ever since?

A. Yes, sir.

Q. Now prior to its organization there was no city hall on the east side?

A. No, sir.

Q. There was no Coliseum on the west side?

A. No, sir.

Q. There was no post office on the west side?

A. No, sir.

Q. There was no ground in preparation for city beautification and so on on the east side?

A. No, sir.

Q. There had been no change made in the Electric Light Plant?
A. No, sir.
Q. And there was no Locust Street bridge except the old one?
292 A. No, sir.
Q. All these things now have grown out of this booster movement in Des Moines, have they not?
A. Yes, sir.
Q. Now, during the four or five years of this booster committee work, what has been the growth along other lines in addition to the increase in value of property?
A. Every line has increased.
Q. And how has it been with respect to the building of residences and other properties in the town, has that kept pace with this other?
A. Yes, sir.
Q. How about the population?
A. The population has increased.
Q. And so during these four or five years growing out of this booster movement there has been a very marked development and growth along every line in the city of Des Moines?
A. Yes, sir.
Q. Now, you told Mr. Read that the increase in value, I suppose you limited it on the east side, had equalled the increase in value on the west side?
A. Yes, sir.
Q. That answer would be subject to some confusion perhaps if not explained. You did not mean of course that the summit of values has anywhere near reached the same on the east side that it has on the west side?
A. No, sir; I said it has proportionally increased.
Q. What you mean, business property on the east side that was worth five thousand dollars, say, prior to the beginning of this booster movement, and was probably not salable even at
293 that, is now worth seven thousand dollars, and if there has been a fifty per cent increase, is now worth seventy-five hundred dollars; that is what you meant that the percentage of increase on the east side was about the same as on the west side?
A. Yes, sir.
Q. When was the Coliseum built?
A. It was completed two years ago.
Q. When was the Locust Street bridge built?
A. It was completed two years ago.
Q. When was the city hall built?
A. It is not completed yet.
Q. When was the ground purchased south of the city hall for civic beautification?
A. Two years ago.
Q. When was the post office completed?
A. About a year ago.
Q. When was the improvement made on the Electric Light Plant?
A. They are not completed yet.

Q. So that substantially all of this river front improvement is now in process of completion?

A. Yes, sir.

Q. What if anything has been done around the gas plant to add to *add to* the general improvement in growth and development and beautification of the city by the Gas Company?

A. I don't know.

Q. Did you see anything down there?

A. I saw everything was painted up in good shape.

Q. Good and red?

A. Yes, sir.

Q. What is located immediately around this Des Moines
294 Gas plant; just tell the Master what is on either side of it, as you remember it now, and the character of the buildings and the character of the streets?

A. The immediate surroundings are quite poor. Little shacks and small residences.

Q. Is there any more dilapidated and broken down, worn out situation anywhere in Des Moines than right around there, that you know of?

A. I couldn't tell. I am not familiar enough with all sections.

Q. Is there another district, Mac, in Des Moines anywhere—take say the three or four or five blocks immediately surrounding the gas plant and the gas plant property—is there another district anywhere in Des Moines that you know of where there has been as little improvement and change made in the last five years?

A. Oh, yes. Those buildings, for instance those north of the Des Moines Boiler and Iron works, while the buildings are more or less hard looking, that business has shown a tremendous increase and they have two extra buildings in there, although they are more or less of a temporary nature. In fact owing to the class of business they do, manufacturing boilers and things of that kind, they have taken quite an amount of additional ground.

Q. Now, of course, I am not speaking about the increase in business; I want the business to be increased just as much as the truth will permit you to increase it, because that is important to this law suit. I am asking now about the improvements to that gas plant and the four or five or six blocks immediately surrounding and the streets—do you know of any other district in Des Moines within the limits now of the business district, where there has been as little improvement in the last four or five years as right there?

A. Yes, sir.

295 Q. Where is it?

A. In the so-called hydraulic district.

Q. That is not in East Des Moines?

A. You spoke about the business district.

Q. I meant East Des Moines?

A. There is just one district there and that is the only district there is that we have without jumping for a long distance.

Q. Is there any part of East Des Moines—then put it that way—say east of Seventeenth street and north of the river, and south

of say Des Moines street and east of the river, where there has been as little improvement as there is in that territory?

A. That is the only district there is within those bounds.

Q. Just tell the court the condition of the streets and buildings surrounding it?

A. Well, the streets—Court Avenue and the streets coming in here are all in good shape, except the one block, the block surrounding it, and the block leading to it. East Court and the streets leading down to Court Avenue are all in very good condition, but the street leading from court to the plant and surrounding the plant are dirt roads, but it is paved up to within a block.

Q. There are then no paved streets adjoining or abutting on this property?

A. No, sir.

Q. They are dirt roads?

A. Yes, sir; or cinders.

Q. Now when you were down there at this plant, what if anything did you notice there in the way of improvements that had been made in that property in the last three or four years while this booster business had been going on?

A. The additional tanks——

296 Q. I don't mean machinery?

A. The fences were all kept up in good shape and everything seemed to be pretty well kept up around the plant itself.

Q. The fences were up and painted?

A. Yes, sir.

Q. When was that done, do you know?

A. No, sir.

Q. I mean any improvement of any substantial quality or character that has been made there within the last three or four years of any kind?

A. I don't know whether that brick building was built there within that period or not.

Q. Now, Mac, you say this increase and growth has continued after it got started right up to this time?

A. Yes, sir.

Q. And it is still on?

A. Yes, sir.

Q. What do you have to say about the prospect of the continued development and growth and increase in population right along?

A. I expect it to continue.

Q. Your committee gets out printed matter and circulars and books setting forth the advantages and all that sort of thing about the city of Des Moines, does it not?

A. The commercial club does not get out much of that; that is in the province of the Greater Des Moines committee.

Q. Are you a member of that?

A. No, sir.

Q. Your Booster Committee have taken part in getting out and preparing material that went into it?

A. Yes, sir.

297 Q. Now, in that material, and you have seen this book called "Wealth" and the other matter that has been gotten out by the committee?

A. Yes, sir.

Q. Now that committee have been advertising Des Moines during this period of three or four years you have talked about, as not only a good town to live in and build homes in, but as a good place for all kinds of industries?

A. Yes, sir.

Q. Manufacturing and all kind of jobbing and wholesaling?

A. Yes, sir.

Q. And they advertised the great facilities for transportation purposes, shipping in and shipping out goods?

A. Yes, sir.

Q. Now, in that circular letter they have included the territory on the east side of the river beginning with the point where the railroads, main line railroads, reach the east side of the river extending east and then north around the east side of the city, clear up above Wood Brothers' factory, as all being available sites for all kinds of industries, haven't they?

A. No, sir; I don't think they have, ever specifically stated any particular locations in any booster literature.

Q. You have seen the east side literature?

A. I don't know that I have seen the east side booklet.

Q. It is true all the territory I mention is available for the different kinds of manufacturing industries?

A. No, sir.

Q. What part of it is not?

A. There is a considerable property lying directly east on the Rock Island and other tracks there that is not available.

298 Q. Why?

A. It is too low.

Q. Directly east?

A. Yes, sir.

Q. The railroad runs through it?

A. Yes, sir, on high embankments; and the expense to try and fill these holes along there and trying to run trackage in precludes their use for many years.

The MASTER:

Q. You used the expression too low. Do you mean liable to flood?

A. Yes, sir, and the ground itself is very low; to bring it up available for trackage is too expensive a proposition to undertake. There are large parts of that that cannot be economically used in any kind of business enterprise I know of.

Q. All you mean, when you say it is not available is, that in your judgment it would be too expensive. It is available all right. There is nothing to hinder a man getting it?

A. No, sir.

Q. To buy it?

A. There is a good deal cannot be bought. A good deal belongs to the railroads; a good deal is owned by the Hubbell Estate which couldn't be bought. And then there is other parts that are in estates and things of that kind; but principally for the *the* first two reasons.

Q. Is it possible then that all this talk for location of factories and industries is without foundation?

A. There is a few along the new Rock Island, formerly called the Short Line and Great Western, a few available sites that can be used. There is along the Belt Line north of Highland Park, outside of the city limits there is some good factory sites.

299 Q. Isn't that a very excellent part of the city for factories of all kinds?

A. Not all kinds, no sir certain classes.

Q. What particular classes?

A. Classes that have large articles such as possibly automobiles, silos or wagons or something that don't come in small packages, where it can be handled in car load quantities in and out.

Q. The kind of manufacture where the buyer and seller does not come together, but where the product is all shipped away or in?

A. Yes, sir.

Q. What railroads are there up in there?

A. Nothing but the Belt Line.

Q. That is this road that you referred to of Mr. Hubbell's.

A. No, sir; that is the street car line.

Q. What roads are in the other part of the district?

A. The Great Western and the Rock Island; also the Belt Line serves part of it.

Q. Give the Master the extreme north limit of the district of the Great Western?

A. I should judge Marshalltown——

Q. I don't mean outside of the city.

A. There are not so many within the city. There is quite a lot of marshy ground along there. I might illustrate: I had a factory which wanted location and forty acres. We went into that north situation carefully. In going in there we took the traffic manager with us who understood the traffic proposition. We found a lot of low land, and the running in of switches determined the availability of the sites. We found along the Great Western there was possibily four available sites of forty acres each where we could get in without cost. In other words, where it was on the level,

300 not necessitating filling.

Q. Is there any factory in this city now that uses forty acres of ground?

A. The Agar Packing Company, I think, are using approximately forty acres.

Q. The Agar Packing Company, that is, they have some pasture land?

A. I think there is 25 acres of stock yards and 15 acres in the plant.

Q. Outside of that sort of a manufacturing, is there any other plant that has any use for forty acres of land that you know of?

A. Yes, sir. I might explain that the tendency of the factories of today is to attach the employé to the factory. I have had several calls where they wanted quite a lot of acreage connected with the factory. The factory would probably use five or seven acres, and the balance of it they wanted to plat in connection with the factory and use it as a factory proposition to attach their employés.

Q. You don't quite answer my question. I want to know if you know of any plant here now using forty acres of land for factory purposes?

A. No, sir.

Q. Take the Des Moines Gas Company, are there some residences down there?

A. Yes, sir.

Q. How many?

A. To the south there are a great many.

Q. I mean on the ground?

A. There is a few little shacks surrounding there that are occupied.

Q. People living in them?

A. Yes, sir.

301 The MASTER: On their own property?

A. No, sir.

Q. I am speaking of the Gas Company's property itself.

A. No, sir; not that I noticed.

Q. If I got the minutes right, one suggestion you made for fixing the value you do on this property, is its close proximity to the business and civic centers?

A. Yes, sir.

Q. And the center of population?

A. Yes, sir.

Q. It is on the extreme limit of the line of population?

A. No, sir.

Q. It is not in the center of population?

A. It is not in the center of population.

Q. What portion of the population of the city would there be north of a line drawn east and west beginning at the west city limits and extending to the east city limits, and running immediately north of this plant?

A. What proportion on the east side?

Q. On both sides, take the whole city, take a line drawn east and west straight by this plant to the west limits of the city and the east city limits, what proportion of the population is north of that line?

A. That question I don't know. I don't know whether the census shows it or not.

Q. Is that map before you fairly correct?

A. Approximately.

Q. Substantially the whole city is north of it?

A. Yes.

Q. What proportion of the population is north of that
302 line as indicated by me?

A. Possibly ninety per cent of it.

Q. Now, I call your attention to a tract of land north and east of the ground in question intersected and crossed by the Chicago Northwestern railway and east of Union Park, what land is that?

A. Well, I don't know who the owners of that property are.

Q. What is it with respect to being open or occupied ground?

A. I think it is open ground.

Q. And high and dry?

A. No, I think not. It is quite marshy in the southwest corner on the west side.

Q. All that ground you have your finger on (referring to the map).

A. On the Fourteenth Street car line here there is a whole piece down here very low and marshy.

Q. The territory just west of the tract I am calling your attention to is part of an addition that has just recently been laid out by some gentleman on the east side—now that tract of land is all high and dry.

A. Lays very nice.

Q. Mr. READ: That is along the Northwestern Track?

Mr. BYERS: Yes.

Q. And that tract of land is nearer the center of population or at least as near the center as the Gas Works?

A. No, sir; Ninth and Park is about the center of population.

Q. Well, there wouldn't be very much difference?

A. A mile.

Q. These circles here are half miles.

A. Yes.

Q. It would be about a mile?

A. About a mile difference.

303 Q. Now, where is the present growth of the city of Des Moines with respect to the map that has been marked Exhibit 6?

A. Towards the west and northwest.

Q. That is on the west side; now on the east side where is the present movement; in what direction is the present growth and development?

A. Towards the east and north and northeast.

Q. Is it not in the direction of the land along the Great Western and the Des Moines Short Line, as they call it, and this tract on the Northwestern road, to which I just called your attention a moment ago?

A. Yes the East Des Moines growth is towards that section.

Q. Has there been any substantial growth at all south of the north line of this Company's property on the east side of the river, either in buildings or increased population or in any other way?

A. Nothing very marked in the last couple of years.

Q. Has there been in the last fifteen or twenty years?

A. It is all filled up pretty well, quite well settled; that was the old part of town.

Q. You don't mean people live down there very much?

A. Yes, down here (indicating).

Q. That down in there is all residence property?

A. Yes, sir.

Q. There has been no improvement there except now and then the repair of a chimney or new roof on the house?

A. Yes.

Q. You take the property immediately surrounding this plant, take a block north, a block east and a block south, has there been any new building built in there that you know of in the last five years?

304 A. There has been some new buildings on Court Avenue. Mr. Yaeger made a very extensive improvement in there.

Q. That is way east of this property about two blocks and a half east?

A. Only a block and a half. It would be a block north and a block east.

Q. This property is on First Street?

A. First to Second.

Q. Anything else in there you know of?

A. There has been some frames on the south side put up there, manufacturing of mill work, and incubator factory has gone in there.

Q. All the cheapest kind of construction?

A. Yes, sir.

Q. Where was the old Mason Automobile factory with respect to this property?

A. It was just north of it.

Q. What kind of a building was that?

A. Frame.

Q. One story?

A. Yes, sir.

Q. Cheap construction?

A. Yes, sir.

Q. Vacant now?

A. Yes, sir.

Q. How long has it been that way?

A. Not very long. After the factory was moved to Waterloo they continued making some parts there and kept it under occupancy.

Q. How much ground does it cover?

A. About a quarter block.

305 Q. About a quarter block, you say?

A. Yes, sir.

Q. Now how much of that territory right around there is in what is called the flood district, in this proposed district of diking and improvement the city has on now?

A. Practically all from the south line of this property to the river.

Q. Well, it extends north of that property?

A. I think not.
Q. The plant itself has been raised five or six feet by filling?
A. Yes, sir.
Q. But in high water the water is both north and south and east of it?
A. I don't think it would go to the north.
Q. I think Mr. Haines stated it had been surrounded—it is all, even north of it, is in the district the city is now contemplating protecting against floods?
A. Yes, if that is so considered, then the whole east and west Des Moines down town district is as high on an average as the east side district.
Q. You don't mean that territory down there is as high as Locust street now?
A. Possibly not since the new grade.
Q. And they are contemplating raising Walnut right now?
A. Yes, sir.
Q. To get it above high water mark?
A. That was not the idea of raising this street.
Q. It is higher at court avenue than at Walnut right now?
A. Then this property is the same height as Court Avenue.
Q. What direction does it slope, both east, west and south?
A. South and east.
306 Q. Then immediately east of it and immediately south of it is in the flood district?
A. Yes, sir.
Q. You are willing to say that?
A. Yes, sir.
Q. There is right now a movement on foot in the city to spend a good deal of money protecting that property against flood?
A. It has a flood scheme.
Q. It extends on to the west side up to the Coon Forks?
A. Yes sir.
Q. I wish you would tell the court about what proportion of this general upward tendency and growth and development in the price of real estate, the general improvement of the city, streets and so on, and buildings, and the increase in population, about what proportion can be credited, say to the last three years?
A. Possibly seventy-five per cent of it.
Q. What proportion of it to the last year, say beginning January 11th and going back to 1909?
A. It has struck more or less of a stationary time right now.
Q. But beginning with the first of January and going back a year?
A. The previous year was quite stationary.
Q. What was the best year in that time?
A. Two years ago.
Q. 1909?
A. 1908 and 1909.

Q. And about seventy-five per cent of this improvement and increase can be credited to those three years?

A. I think so.

Q. In your judgment, does the present condition and what you know of what is going on in the city, by the city itself and
307 by the business interests of the city, and by the organizations in the city, that you know they are doing, what in your judgment will be the development and growth in increase in the population here in the next three or four or five years?

A. The next five years should see fifty per cent increase in population.

Q. What is the present population?

A. About one hundred thousand.

The MASTER: In the last five years?

A. In the next five years. Keeping up the same ratio we ought to have fifty percent, making it from 140,000 to 150,000 population.

Q. What part of that growth and addition do you expect or do you in your judgment believe will take place in East Des Moines?

A. It will grow proportionally.

Q. How far is it, Mac, as you have found it in your busy life the last three or four years, booming Des Moines and handling real estate, how far east now from the west limits of the city, where there is growth and movement and homes, new streets being laid out, and additions laid out, to the village or city of Valley Junction?

A. Our Sixtieth street is Valley Junction's First street.

Q. The western limit now of the homes and residence part goes to Fifty-sixth?

A. It is built pretty well up, it goes waving up through the north; I should say an average to Fiftieth street.

Q. Is it on Fifty-sixth street where Hatch lives and Wilcox?

A. That is the old Fifty-third; it is now Fifty-sixth.

Q. Just recently paving has been ordered on Grand Avenue to Fifty-sixth street?

A. Yes, sir.

Q. When you get to the point where Fifty-sixth street is
308 intersected by Grand Avenue, you are looking right into Valley Junction, are you not?

A. Yes, sir.

Q. The growth out in that direction has been very rapid and very great?

A. Yes, sir.

Q. And it is still growing there?

A. Yes, sir.

Q. Now, just one thing further—is the same thing true with respect to the territory that lies north of the Des Moines river and is included in the part of the city that we call Highland Park; has the same growth and development been going on up there?

A. Not quite to such a large extent, but there is a good growth.

Q. Is it not true that in very recent months a movement has started that is progressing rapidly in the way of new homes, as well as sales of real estate?

A. It is a very good movement.

Q. You don't want your testimony left in a condition that will put you in a position as saying that Des Moines is now without plenty of factory sites and warehouse sites and manufacturing sites and all that sort of thing, do you?

A. We have a good many factory sites that can be leased, and a great deal of the booster effort is to get people on this leased ground; but as to ground to sell we are short.

Q. Now, suppose that there are some, what we would call natural obstacles or limitations upon factory sites, would you call the rivers and the lowlands adjoining the river, as that character of ground where it is not available because it is low land and because the river is a menace to it all the time?

A. Partly.

309 Q. Yes, the city of Des Moines is surrounded on every side by open ground?

A. Yes, sir.

Q. There is nothing to prevent the city from extending its industries in every direction, except the Des Moines river and the Raccoon river; that is true?

A. Yes, as a general proposition.

Q. When you appraised this property were you advised that the Company owned a portion of two of the alleys?

A. Yes, sir. Not that they owned it, but that it had been vacated for their use.

Q. In valuing the plant you included those two pieces of ground, in arriving at the general value of the property?

A. No, sir; excepting in a very general way.

Q. What consideration or value did you give to the fact that they claimed to have the right to occupy those alleys?

A. Practically no consideration. I arrived at my conclusion from a front footage basis, assuming that the alleys were there, like any other quarter block.

Q. Mr. Olsen, take the northwest quarter of the north block—I haven't the description here—take the 132 foot square and assume there were no buildings there, the gas plant was not in existence and that we were burning electricity, no buildings on that property, just as located there now, surrounded as it is, what would that quarter block be worth?

A. Two hundred dollars a foot.

Q. What is the front footage?

A. 132 feet.

Q. It would be worth two hundred dollars a front foot?

A. Yes, sir.

310 Q. That would be the extreme—is there any property over there, have you ever heard of a quarter block selling anywhere in that territory just as it is now for two hundred dollars a front foot?

A. There isn't practically any other property there with the same conditions.

Q. There are a number of quarter blocks for sale there now?

A. I think not.

Q. Isn't there a quarter block for sale now over there that can be bought for half of two hundred dollars a front foot and better located than this is?

A. I don't think so.

Q. Do you know of any quarter block sold in that territory, just located as this is, general surrounding like it, sold in the last five years?

A. No, sir; I am not familiar with any sales in there.

Q. Take the quarter just immediately south of it on the river in the same block, what would that be worth?

A. $150 a foot.

Q. $150 a front foot?

A. Yes, sir.

Q. That would be remote from everything, what trackage has that?

A. Two railroads; the K. D. and the Q.

Q. They don't own clear to the railroads in that quarter block?

A. You said the northwest quarter block—Lots 4, 5 and 6 in Block B; that is the K. & D., the Rock Island that runs north of that property, north of the other block.

Q. I am referring to the same block now; I mean the southwest quarter of the same block?

A. That would be worth two hundred dollars a front foot.

Q. What does it front on?

311 A. East First street.

Q. That is the river front?

A. Yes, sir.

Q. There is nothing between it and the river?

A. Two lots.

Q. But no buildings or industries of any kind?

A. No, sir.

Q. And not on the paved streets?

A. No, sir.

Q. Is that ground worth as much there as the front footage of East Locust street between Fourth and Fifth and Third and Fourth?

A. No, sir.

Q. Is that frontage worth as much as the frontage where the Shaver Wagon factory is?

A. I don't know where it is.

Q. Over here on Locust street, this side of the Northwestern Railroad?

A. Oh, yes. No, it isn't worth as much.

Q. As compared with that, what would be the difference in the frontage value between the Shaver property that abuts Locust Street and this property?

A. The Shaver property would be worth double.

Q. If this was worth $200 a front foot, his would be worth $400?

A. Yes, sir.

Q. Now take it down to the south block or down the river, take the northwest quarter of that block, what would that be worth?

A. Lots 3, 4, 5 and 6 in Block B—$150 a front foot.
Q. And the quarter block south of it, the southwest quarter?
A. There is only one lot there; they don't own clear down.
Q. What would that lot be worth?
A. I couldn't place a price on that; I priced the whole
312 thing together.
Q. I am trying to get it separately.
A. Take the southeast quarter, $150 a foot.
Q. And the little tract down on the southeast there, I don't know how much is in it?
A. Lots 9 and 10 in Block M.
Q. Have the Gas people or any body for them told you what they paid for that ground when they bought it?
A. No, sir.
Q. Did you inquire?
A. No, sir.
Q. Doesn't it make any difference in arriving at the value of the property what it sells for?
A. No, sir.
Q. You measure the value purely by judgment without respect to what it sells for anything else?
A. What I could get for it.
Q. Not what you could get for it, what you asked for it. What you get for it is what it sells for?
A. Yes, sir.
Q. In arriving at the value, you simply consider what you ask for it?
A. Yes, sir.
Q. All right then, take these two lots, 9 and 10, what are they right now on the market over there worth, if I should ask you to sell them within the next fifteen days?
A. From thirteen to fifteen thousand dollars, combined with the railroad facilities. We appraised that $13,200.00.
Q. How much ground is there there?
A. 132 feet square.
313 Q. Isn't it true that there is a quarter block of ground for sale over there now for $7,500.
A. I don't know.
Q. And advertised for sale for $7,500.
A. Not that I know of.
Q. Didn't you make any inquiry?
A. No, sir
Q. Didn't you go into that community when you undertook to fix these values to ascertain what was being paid for property in that vicinity?
A. No, sir.
Q. You paid no attention to any of the things that enter into the question of value, except your judgment as to the location and future prospects?
A. You say any things enter into it—that is a general term. I

took a great many things into consideration I did not ask the price of the surrounding property.

Q. No, nor any selling prices?

A. I didn't know of any recent sales.

Q. Of course all the property in Des Moines has a market price and that market price is determined among you real estate men by the asking price.

A. No, not necessarily.

Q. Suppose here is a property on Walnut street and I want to buy it and come to you and ask you, what do you sell that property for, what is it worth; the price you give to me will be the selling price, that would be your market value of that property?

A. Yes, sir.

Q. Did you try to ascertain over there what that value was in that community.

314 A. No, sir.

Q. Did you try to find out what the owners of property immediately surrounding this held their property at?

A. I knew what they were asking on Court Avenue. I had a couple of properties listed for sale. I knew what the front footage value approximately was on Court Avenue. And then I took the values on that, and the offers I have for factory sites—I have two people now looking for similar locations and what they were willing to pay for a similar proposition. Then I went down *down* and looked this ground over with a view to its availability for my client's use; what he would have to pay on the west side for a similar location and between the two I drew a conclusion as to a just cash value of the property.

Q. Then your value of the property rests entirely upon an estimate that it is for a particular purpose?

A. That is true.

Q. I am not talking about Court Avenue; in some respects at least that is a business street and all occupied by business property?

A. Manufacturing largely.

Q. There is a large amount of business property on Court Avenue between the river and the rise on the hill?

A. Very little; some on Sixth and Seventh.

Q. I am speaking of this property off of any of the main streets like Court Avenue or Walnut or Locust; you didn't try to ascertain the selling prices of any property south of Court Avenue?

A. I didn't make any specific inquiry, just simply used my general knowledge of these conditions.

At this time, 11:30 A. M. an adjournment was taken until 9:30 A. M. July 17th, 1911.

315 Monday Forenoon Session.

JULY 17, 1911—9:30 a. m.

All counsel for respective parties present.
Testimony on part of complainant resumed as follows:

MACK OLSEN re-called for re-direct examination, examined by W. L. Reed, Esq., testified as follows:

Q. Your attention was called to a district north of the city?
A. Yes, sir.
Q. In the vicinity of the Shackleford Brick Company?
A. Yes, sir.
Q. That district is served by what railway facilities?
A. The Belt Line.
Q. You mean the Street Railway?
A. Street railway service, yes, sir.
Q. A switch has been built from the Urbandale junction to the factory?
A. Yes, sir.
Q. Do you know whether it was built by the owners of the factory or the railway company?
A. I don't know.
Q. That is the only factory in that district?
A. Yes, sir.
Q. Then on the bank of the river is the Flint Brick Company, on the east side of the river?
A. Yes, sir.
Q. That is located there because of the availability of shale?
A. Yes, sir.
Q. That is served by the street railway?
A. Yes, sir.

316 Q. As to the factory district lying on the east side along the Great Western, that is how far from the business center, how far out is that; you may look at that map Exhibit 6.
A. Two and a half to three and a half miles.
Q. Along the line of the Northwestern, after you leave Capital Park, is there any factory district out there?
A. No, sir.
Q. Do you know whether the railway company owns any land in there?
A. I know it did buy some, but I don't know just when.
Q. There is no factory district in there?
A. No, sir.
Q. With respect to the availability of such remotely located pieces of trackage property, what do you say in comparison with the inside trackage property such as the Des Moines Gas Company as to the availability and the uses to which it may be put.

Objected to on part of defendants as being incompetent and the witness being incompetent.

A. The outlying factory sites, factory locations are available for factories producing large articles, such as wagons, automobiles, silos and things of that kind; or for factories that do not ship in small quantities where they have to have transfers to make express offices and depots for small shipments, where the shipments are all in larger bulk.

Q. What is the fact as to whether there is and has been a difference in the market value of grounds, those remotely situated, and ground and lands inside?

A. There is a very material difference between the two classes; the purpose and use of each necessarily make that so.

Q. By the way, you were asked on cross examination as to the period covered by the increase in values of real estate in Des Moines. You said something about that period being in the
317 last five years since the organization of the Booster Club. I want to inquire of you whether or not there was any tendency or advance prior to the activities of the Booster Club—I want to get your point of view, whether you claim it was all caused or because of the booster influence, or whether there was a growth before that—what do you mean by that?

A. About twenty-five or twenty-six years ago, I learn from inquiry, there had been a very high scale of prices in Des Moines. Then between that period and up to a very recent period—of course the property right after that went way down, and from that there had been a gradual increase in a way; in another way a great deal of the property had not arrived at the price. We had a panic at that period. But within the last eight years I have been familiar and in the real estate business and I have noticed the particular increase in prices, going back to the value it should have, has been since the formation of the booster organization, although previous to that time I do not speak with any authority.

Q. I want to know whether it was a mere ephemeral advance or a substantial basis for it?

A. I believe there is a very substantial basis. In the comparison of values of real estate all over the United States, I found Des Moines values for similar purposes have been very low, have not been what they should be in a city of its size, its population and its advantages. I think the booster organization have brought this to the attention of the people and it is coming to its real value. I do not think it has reached its heighth yet, or that it is ephemeral, because in comparison with other cities similar locations of property yet
318 is on a very conservative basis in Des Moines.

Q. Did you make your valuation of the Gas Company property independent, based upon your own investigation and examination?

A. Yes, sir.

Recross-examination by Hon. H. W. Byers:

Q. Mr. Olsen, do you know anything that would make this property that the Gas Company is using down here, the real estate I mean now, and of course you are not considering anything else, any more

available to pipe gas to Valley Junction than the location up here, you spoke of at Highland Park?

A. I have no knowledge of that, no sir.

Q. Do you know of anything that would be of particular advantage and in favor of this ground down here between Elm and Vine streets and First and Third, that you would consider it as against a similar property along the Northwestern Railroad, northeast here, or along the Great Western or short Line, as it runs north just east of town, to pipe gas, say to Valley Junction, or any part of the city?

Objected to on part of complainant as not competent and not cross examination.

A. I wouldn't know anything about that.

Q. Since you have been asked to make comparisons, would there be any advantages or any conditions more favorable to this territory up here in Highland Park and out east here up and down the Great Western road, than this down here, say for residences of the employés and all that sort of thing, which place would be the better?

A. The outer sections would be more favorable for employés.

319 Q. In every respect, sanitary and every other way?

A. Yes, sir.

Q. You are pretty well acquainted with East Des Moines—starting at the point where the Northwestern Railroad leaves the river and goes off in a northeasterly direction through the city, isn't it true that you can go right over there to-day and buy block after block of land through which this Northwestern Railroad now runs, and in the residence portion of East Des Moines, and buy it for less than $24,000 a block, right now, houses and all on it.

A. Yes, sir.

Q. Do you know where the property is that George Cosson bought?

A. No, sir.

Q. Do you know the Wilkins Brothers property in East Des Moines?

A. Yes, sir.

Q. Do you know what that property sold for, the home of one of the Wilkins boys, on I think about Twelfth Street?

A. The only property I know of theirs is on Penn Avenue, and then the property they have on Ninth and Washington streets.

Q. That was sold not very long ago; do you know what that sold for?

A. I think somewheres around four thousand dollars.

Q. Yes, sir. There isn't another quarter block you can think of this minute accessible to the Northwestern Railroad in the northeast part of East Des Moines, but what can be bought for less than six thousand dollars?

A. I wouldn't say that.

Q. With the homes and all right on them, good homes on them and improved?

A. I wouldn't say that; less than six thousand dollars.

Q. Do you know of a quarter block for sale there in the
320 best residence part of that northeast Des Moines—

A. This Wilkins property you just mentioned was four thousand dollars for fifty feet.

Q. Isn't there more than fifty feet?

A. No. Then there is other houses there that would bring that quarter block higher than that.

Q. But that property is worth a good deal more than the property on the railroad?

A. Yes.

Q. All that property on both sides of the Northwestern Railroad in Northeast Des Moines is cheap right now?

A. Yes, very low.

Q. Do you know of anything about this property down here that you put a value of $221,000 on, that makes it better for the purpose of manufacturing gas than this property we are talking about which can be bought for $24,000 a block?

A. No, sir.

Q. Did you look around this property pretty carefully down here?

A. Yes, sir.

Q. Did you consider anything about the buildings in fixing your values?

A. No, sir.

Q. Or any other improvements?

A. No, sir.

Q. In other words, you fixed this value upon the land alone without respect to the Gas Company't other property?

A. Yes, sir.

Q. For the purpose for which it was being used?

A. Yes, sir.

Q. Now, the block right straight south of Block L, what is the value of that south half of that block in your judgment; I
321 mean the market value, what it will sell for, not what you think it might be worth, but what it would sell for on the market?

A. Probably ten thousand dollars.

The MASTER: Is that the whole block?

A. The half block.

Q. That would be less than two hundred feet from a main line railroad, north of it, wouldn't it?

A. Yes, sir.

Q. Now what would you say would be the market value, what it would sell for, not what you might think it was worth, all of Block L, the buildings all off of it, nothing but the bare land?

A. The whole block I should say ought to sell for seventy or eighty thousand dollars.

Q. No, not what it ought to.

A. I should say that would sell for approximately seventy thousand dollars.

Q. Do you know what it is held at?

A. No, sir.

Q. What is it worth, that is, the market value?
A. Fifty dollars a foot.
Q. That is high land?
A. Fairly so.
Q. Just the same as the Gas Company's?
A. No.
Q. It is higher than that?
A. I wouldn't think so. Of course it is in the river bank.
Q. Which way does it slope, towards the river or toward the Gas Company's property beginning at the top of the bank?
A. Down hill.
Q. I know; but does it slope towards the Gas Company's
322 property; is it higher at the river than at the Gas Company's property?
A. No, sir about level.
Q. So this is about the same level as the Gas Company's property?
A. Yes, sir.
Q. And you think it is about fifty dollars a front foot?
A. Yes, sir.
Q. The property, when you go east, the land north of the Q, all of it is of the same character and description except where there are already extensive factories. Now beginning with east Sixteenth street and going clear north up along the Great Western and the Des Moines Short line, clear around to Highland Park, extending clear west in Highland Park, say within a mile of the west line of the city, about what is that property all worth a front foot, aside from that which is now occupied by a large manufacturing plant?
A. Approximately ninety-five per cent of that is in acreage, and under acreage it would run from five hundred to two thousand dollars an acre.
Q. What would it be in lots?
A. Five lots to the acre—one hundred to five hundred dollars for a fifty foot lot.
Q. I mean with the houses and all on?
A. The homes vary so I couldn't place any estimate on them.
Q. On an average?
A. There are houses there that are not worth anything, and some are worth ten thousand dollars. There are a few very beautiful suburban homes up there. The average residence would be worth about two thousand dollars.
Q. Now, take all this ground here that is platted in Highland Park and west, say of Sixth Avenue, outside of that part now occu-
323 pied by extensive residences; what is it on the market for right now per front foot?
A. From five to twenty per front foot.
Q. Now, go south of the Coon river, on Seventh street, how far is it to the high ground as distinguished from the river bottom on the south side?
A. The high land starts just as you cross over the river.
Q. What is that ground worth a front foot down there?
A. That is the same kind of an acreage proposition. It has not

been divided into front footage, the average price running around five hundred and seven hundred and fifty an acre.

Q. How far is that at that price from the court house in Des Moines?

A. One mile.

Q. How far is it from the Capitol Building?

A. Two miles.

Q. How far is it from Valley Junction, about?

A. Four miles.

Q. It is two miles nearer than the present location?

A. One mile.

Q. Now is there any part of the city now growing, over on the south side?

A. Yes sir.

Q. Much?

A. Not very decided; some growth.

Q. Any improvements being made? that will make that part more accessible to the business center?

A. The Seventh street viaduct.

Q. That is in process of construction right now?

A. Yes, sir.

Q. Now, how much of a strip of country, Mr. Olsen, begin-
324 ning at the extreme northern point where the land begins to rise, from what you call the low bottom river land, how much territory is there south that would be available for all kinds of industries, by the building of tracks and extensions of switches and so on?

A. If the tracks could be gotten into it, I expect great quantities of land could be used, but there is difficulties there in trackage; the tracks are all considerably lower than the land.

Q. The C., B. & Q. now runs around there?

A. They run at the bottom of the hill—the Great Western.

Q. Don't both run around there?

A. The Q. runs off in the other direction.

Q. I think you are mistaken or I am; they both go around there.

A. Yes, the Q. does also.

Q. And the great western gets over in there too?

A. Yes, sir.

Q. And the Des Moines Union—in fact that Des Moines Union is heading that way all the time?

A. No, the Des Moines Union does not cross the river.

Q. Doesn't go south of the river?

A. No.

The MASTER: Does the Rock Island go over there?

A. That runs off east here.

Q. About how much of a strip of country, open country, is there in there that is now held as acreage, that is to say within every part of it, and within three miles of the post office and the Capitol Building?

A. I expect practically to the city limits south, and east a strip two by three miles, interspersed with hollows, valleys and hills.

Q. Take all of it, every bit of it, of that land, and in addition to that all the land that lies north of where the rise begins,
325 if that were filled up from seven to ten feet, as this ground down here where the plant is, it would be high and dry?

A. Yes, sir.

Q. When you were around there, didn't you notice it was filled up eight or ten feet?

A. Yes, sir; I noticed the fill.

Q. The railroad track just south of it is up on a high grade, filled up eight or ten feet?

A. Yes, sir.

Q. The same is true east of it?

A. Yes, sir.

Q. You noticed a big sink hole with old cottonwood trees growing in it, didn't you?

A. I noticed holes, but didn't notice the trees.

Q. Did you look inside of the yards where you could see places where it was down almost to the old original bottom level?

A. No.

Q. Didn't you notice those two big tanks south of Elm Street?

A. Yes, sir.

Q. Wasn't they built right down in the old river bottom?

A. I don't know whether it is on the old original river bottom or not; whether it was filled land or not.

Q. I don't know how carefully you looked over there, if you remember the surroundings there, you must have noticed in that same block, right south of where these two holders are, the residence on the corner is down low, and if you observed at all you must have noticed it is on the old river bottom. The level of the old bottom above it has a dike, did you notice that?

A. Yes, sir.

Q. Isn't that the old river level?

326 A. I presume so; I don't know.

Q. Anyway, where these buildings are it has been thrown up eight or ten feet high?

A. Yes, sir.

Re-redirect examination by Mr. READ:

Q. Immediately south of the Coon river the ground rises abruptly to a high range of hills?

A. Yes, sir.

Q. The highest about Des Moines?

A. That I don't know.

Q. They are high hills?

A. Yes, sir.

Q. Between the foot of the hill and the Coon river the ground is very low as you go west?

A. Yes, sir; gets lower as you go west.

Q. Subject to overflow?

A. Yes, sir.

Q. And not used for any purpose?

A. No, sir.
Q. On the hills is a large tract of ground devoted to park purposes?
A. Yes, sir.
Q. South Park?
A. Yes, sir.
Q. West of that from the river to the foot of the hill is the track of the Great Western Railroad and yards, and then there is a brick manufacturing yard over there?
A. Yes, sir.
Q. The truth of the matter is, there isn't much available
327 ground in that district.
A. Not in that district.
Q. Immediately south and across the Coon river towards the junction of the Des Moines and Coon, that is residence property exclusively?
A. Yes, sir.
Q. It has been that for a good many years?
A. Yes, sir.

Re-recross-examination by Mr. BYERS:

Q. The hills are no higher than between here and Valley Junction, I suppose?
A. No, sir.

Excused.

(Mac Olsen. Time attendance: four days.)

R. P. BOLTON, being first duly sworn on part of complainant, examined by W. L. Read, Esq., testified as follows:

Q. What is your name?
A. R. P. Bolton.
Q. Where do you reside?
A. Des Moines, 1519 West Eighth.
Q. How long have you lived in Des Moines?
A. More than thirty-seven years.
328 Q. You are a native of Des Moines?
A. Yes.
Q. What occupation have you?
A. I am Secretary of the Greater Des Moines Committee.
Q. What is that committee?
A. A commercial organization for city promotion.
Q. How long have you been secretary of that committee?
A. A little more than four months.
Q. Have you ever been in the real estate business?
A. I have followed the real estate business without being actively engaged in the business.
Q. In what way?
A. Through representing the *woner*.
Q. You are an owner of real estate?

A. Through the family, yes.
Q. Your father's estate is the one you refer to?
A. Yes.
Q. Where is the property of that estate situated generally?
A. Mostly located along East Locust Street from the river to East Seventh.
Q. To what extent have you followed the course of prices and values of real estate in Des Moines?
A. I have kept myself informed on typical sales and kept constantly posted by conversation with people interested in the real estate business.
Q. Have you made a study of the subject?
A. To some extent, yes.
Q. What has been the trend of prices in Des Moines real estate?
A. It has been upwards constantly.
Q. What period has that upward tendency covered?
329 A. To a marked degree, for the past ten years.
Q. Do you know where is located the property of the Des Moines Gas Company?
A. I do.
Q. Where, and in that connection you may describe it referring to the map Exhibit 5, if you care to?
A. The main block they occupy is between Vine and Market and First and Second. They also occupy nearly all of the block between Market and Elm and First and Second. They occupy a quarter block at the southeast corner of Second and Vine; and the quarter block in the southeast corner of Second and Elm.
Q. Can you refer to the map, Exhibit 5, and identify it??
A. I have described it.
Q. You have described it in its general location, but refer to the map.
A. They occupy all of Block C; all of Block B excepting Lots 1 and 2, and Lot- 3 and 4 in Block K and Lots 9 and 10 in M and all of Block T except Lots 1 and 2.
Q. That is located in East Des Moines?
A. Yes, sir.
Q. What uses is that property available and adapted to?
A. Manufacturing and warehouse purposes.
Q. Is that property in the retail district at all?
A. No, not at all.
Q. As compared with West Des Moines inside business property, what have been comparatively the prices in East Des Moines?
A. The prices have been less at all times in East Des Moines for like locations.
Q. Has there been any marked increase in values of real estate in East Des Moines?
A. There has been a marked increase.
330 Q. Within what period?
A. Within the past ten years.
Q. What has there been that in your judgment tended to increase values in East Des Moines?

A. The unification of the two sides of the river and the increase in population.

Q. Has the construction of the improvements on the river front added to that?

A. It has contributed to the unification of the two sides and made one city instead of two.

Q. In a general way, how is the property of the Des Moines Gas Company served by railways and switches?

A. It is served by the C. B. & Q., K. & D. trackage, and the Rock Island trackage.

Q. Where is located principally the trackage property in Des Moines, referring now to inside property?

A. From East Ninth street to West Sixteenth street, south of Court Avenue and Elm street and north, with the exception of West Des Moines, there is a large property that belongs to Mr. Hubbell that lies south of Elm Street, he can serve with his own railroads.

Q. That property has been referred to as not being for sale?

A. It is all trustee property, tied up by a trust deed for some thing more than fifty years.

Q. Available for lease?

A. Leasehold only.

Q. What about the general location of this Hubbell property as to being within the flood district?

A. It has been entirely under water several times.

Q. To what extent is the trackage property within the
331 district you referred to, already appropriated and placed in use.

A. In my opinion seventy-five per cent of it is appropriated and devoted to rather permanent use.

Q. What is the fact as to there having been a growth in the warehouse business and manufacturing business in Des Moines so as to create a demand for such property?

A. It has in my opinion trebled in the last ten years.

Q. What effect has that had upon prices and values of trackage property?

A. It has had a great influence upon the increase of values of trackage property.

The MASTER: Do you mean property has doubled generally?

A. I say manufacturing and jobbing has trebled in the last ten years.

Q. Have you made an examination and study of the property of the Des Moines Gas Company with a view to placing a valuation upon it?

A. I have.

Q. When did you make such examination?

A. Since along in March, I should say.

Q. There are two and three quarter blocks lying contiguously?

A. Approximately two and three quarter blocks.

Q. Is there in Des Moines any tract so large as that that is available for purchase for trackage property?

A. Not in the general trackage district. There isn't a property as large as that owned jointly for sale.
Q. I am referring to inside property?
A. I say there isn't any inside property.
Q. Not referring to the remote manufacturing district?
A. Yes, sir.

332 Q. Do you know what the property of the Des Moines Gas Company as described by you was fairly and reasonably worth in its market value, say last January?

Mr. BYERS: That question in that form is incompetent.

A. Yes.
Q. What in your judgment and opinion was the fair reasonable market value of the Des Moines Gas Company property as described by you, last January?

Objected to as being incompetent.

The MASTER: Without improvements upon it.
Q. Exclusively of improvements of the property?

Defendants interpose the same objection last above made.

A. I estimated it worth $221,160.00.

Defendants move to strike the answer as incompetent and immaterial.

Q. How did you reach your valuation?
A. I appraised it in blocks and then considered the fact that it lays contiguously, adjacent, it had an enhances value of twenty per cent over its value as separate blocks.
Q. Speaking of the present time, Mr. Bolton, what would be the fair, reasonable market value of the property?

Objected to on part of defendants as incompetent and immaterial.

A. It has enhanced some in value, probably one or two per cent. All property in Des Moines is constantly growing. I suppose there is not a month that goes by that the property is not worth more than it was the month before.

Cross-examination by H. W. BYERS, Esq.:

333 Q. You are a considerable holder of real estate on the East side yourself, are you not?
A. I own some; the family owns more.
Q. You have general charge of it?
A. I have charge of it all.
Q. Your own and the family's?
A. Yes.
Q. And you are now president of the commercial club?
A. Secretary of the Greater Des Moines committee.
Q. I wish in a brief way, as briefly as possible, and yet get it all in, you would tell the Master what the purposes of that committee are, what its organization means and what is it for?

A. It has a number of planks, the more principal ones being to give publicity to Des Moines, advertising its advantage as a commercial center, home center; we are organized to assist any one in securing a foothold and location here; we are organized to assist our merchants, jobbers and manufacturers in getting fair and equitable freight rates and service; we are organized to assist any large public improvements, such as the up-building of our university buildings and buildings of a semi-charitable character, such as the Y. M. C. A.; and in general we are organized to be of assistance to the growth and prosperity of Des Moines and its interests.

Q. The general purpose then of your committee is to develop the material interests of Des Moines?

A. It is, yes.

Q. And to advertise the advantages that Des Moines has to offer to the business interests of the state and country?

A. It is.

Q. I suppose in that connection too your committee makes
334 annual statements and reports showing the advancement there has been made along the lines the committee is working.

A. We do.

Q. And among other things that committee has in mind, not only adding to the population of the town or inviting in people, but to increase and enhance the value of the property in Des Moines?

A. The increase of the population, enhancement of business enterprises and property values, yes.

Q. I suppose that that committee, in so far as it can do so and use its influence in that direction, has for its purpose the reduction of the cost of living in Des Moines?

A. We haven't gone very largely into that yet.

Q. That is one of the necessary things that would go with boosting Des Moines?

A. It might be essential; we haven't investigated it yet.

Q. Either as to defective gas or food?

A. No.

Q. How long since your committee was organized?

A. It was organized during the year 1906; I believe it was originally started in March, but the organization was not effected until December, 1906.

Q. When did you really get to moving so that you could see some progress and some movement?

A. I should have said 1907, instead of 1906 it was organized. In December, 1907.

Q. About what time can it be safely said that the public generally could see and feel this movement growing out of the Greater Des Moines Committee organization; give us some point at which you can start?

A. Well, that is all a matter of opinion. The work of
335 a commercial organization is usually exhibited largely by intangible evidence. You cannot definitely point to any one accomplishment of any great value.

Q. I didn't mean exactly that. Of course you can tell when you

get new industries here; some of them I suppose came because of the activity of the committee; give us some point after the organization of the committee.

A. I think they secured results immediately.

Q. You would fix that about 1907?

A. 1907.

Q. Give the Master the names of the committee as they were in 1907?

A. I was not a member at that time; I do not possess in my memory all the names. I know some of the principal ones.

Q. Give us the principal ones.

A. Lafe Young, Jr., Charles Hewitt, Frank Kauffman, F. H. Luthe, T. E. Hurley, Aaron Younker, Frank Jackson, W. E. Crelland and Mr. Paul Sawyer.

Q. Mr. Sawyer is connected with the Des Moines Electric Light Company.

A. Des Moines Electric Company. G. B. Hippe.

Q. Mr. Hippee was connected with the Street Car Company?

A. Yes. H. H. Polk.

Q. He was President of the Interurban?

A. Yes. Charles Denman.

Q. He is President of the Water Company?

A. He is something like that. Mr. F. M. Hubbell and F. C. Hubbell and Mr. A. C. Miller.

Q. Mr. F. C. Hubbell is an officer of the Des Moines Union Railway?

A. Yes, of the Des Moines Union.

Q. And Mr. A. C. Miller——

A. He was at that time president of the Home Savings
336 Bank. Mr. T. F. Shrapneck, a member of the firm of the Hare Stove Manufacturing Company. Mr. Frank Mathis, of Mathis & Son, Real estate people: Mr. Jansen Haines of the Gas Company.

Q. Keffer?

A. No, sir. I think I names pretty close all the members—Robert McCutchen was one, of the firm of Hatten-McCutcheon, real estate people, and John Cownie of the Cownie Glove Company.

Q. Were all of the public utility companies in Des Moines represented on the committee?

A. No, not all of them.

Q. What particular ones were not represented?

A. The two telephone companies.

Q. Any outside of those you can think of?

A. I think that is all.

Q. Who makes up the present directory board?

A. Well, substantially the same men, with the exception of Mr. Crelland, Mr. Luthe, Mr. Hurley, Mr. Jackson and Mr. Younker, who have resigned.

Q. Mr. Jansen Haines is on the present board?

A. Yes.

Q. And Mr. Sawyer of the Electric Light Company?

A. Yes.

Q. Now, how is this organization maintained?

A. By the voluntary contributions of something over three hundred business firms in Des Moines.

Q. Is the Des Moines Gas Company one of the contributors?

A. Yes.

Q. What amount do they contribute?

A. Two thousand dollars a year.

Q. Now, Mr. Bolton, what are some of the improvements
337 in the city that in your judgment have had much to do with the increase in value of property in the immediate surroundings, surrounding territory?

A. The electrolier system of street lighting.

Q. Give the time the electroliers went in?

A. About 1909.

Q. All right.

A. The building of the bridge on Locust street across the river.

Q. When was that?

A. It was begun in 1909. The location of the city hall on the river front; the raising of East Locust Street grade above high water, all had a marked influence.

Q. Those are all recent improvements?

A. Yes.

Q. Most of them are still in an unfinished state, except the bridge?

A. The city hall is the only one still unfinished.

Q. And the Walnut street bridge is now being built?

A. Now being built.

Q. Now in connection with the building of the Walnut street bridge, does that contemplate the raising of the grade on Walnut street?

A. Well, that is something pretty hard to answer; some think it does and some think not; it depends on who you are talking with.

Q. What is it in your judgment, is it a part of the improvement necessary?

A. It should follow, yes sir.

Q. Walnut Street is south down the river from Locust Street?

A. Yes.

Q. The next street south down the river is Court Avenue?

A. Yes, sir.

Q. The next street down the river is Vine Street?
338 A. Yes, sir.

Q. The next one down the river?

A. Market.

Q. The next one south?

A. Elm.

Q. The next one south?

A. Raccoon.

Q. Those streets as you name them are as you proceed down the river?

A. Yes.

Q. And all the property of the Gas Company, the real estate you have been talking about is between Raccoon Street on the south and Vine Street on the north?

A. It lies between the alley just north of Raccoon street on the south and Vine on the North.

The MASTER: Are those streets paved?

A. None of them are paved.

The MASTER: About the Gas Company property?

A. None of them are paved.

Q. Proceeding in the other direction, Mr. Bolton, starting with the Coliseum building, or rather starting with First street on the west side of the river, as you proceed eastward, the first street east is First Street on the east side?

A. First Street on the east side.

Q. That street parallels the river.

A. Approximately.

Q. The next street is Second?

A. Second.

Q. And the next Third?

A. Third, south of Locust is Third.

Q. Now, all of the Gas Company's property which you
339 have been fixing a value on lies between East First street and East Third street?

A. No, it lies between the river and the alley, between Second and Third street- on the East.

Q. Well, they have no property east of Third street.

A. No.

Q. And they have none west of First street?

A. They occupy a pi-ce of property along the river bank.

Q. They occupy some property they don't own?

A. I don't know anything about that; they occupy it.

Q. Where is First street with respect to the main part of that property?

A. First street lies just west of their main buildings and holders.

Q. West of east First Street is what is called Block T?

A. Block T, yes.

Q. Well, all of its main buildings are east of First Street and west of Third?

A. East of First and west of Third, the main buildings.

Q. Who first interviewed you with respect to putting a valuation on this property.

A. Mr. Frank Kauffman.

Q. For whom was the valuation to be made?

A. I was originally asked by Mr. Kauffman what my ideas were of the trend of values in East Des Moines, and so on, trackage property, and what I considered the property down there is worth. Then I was asked afterwards if I would look the property over with the idea of appraising it for the Gas Company.

Q. Of course, you understood, Ralph, the purpose they had in getting these valuations?

A. I did, when I was told, was asked to appraise it for the Gas Company.

340 Q. And they explained it was for the purpose of basing a gas rate in this law suit?

A. I was not told that, but I was naturally in the position of assuming it.

Q. And so when you went down there to fix a value on this property you had a pretty thorough understanding of the purpose for which the appraisement was wanted?

A. I was in a position to assume what it was for, yes.

Q. You say that seventy-five per cent of the trackage in Des Moines is appropriated in the limits——

A. In the limits I described, excepting Mr. Hubbell's property, which is only to be had on lease-hold.

Q. I suppose when you made that answer you give to the term trackage that it is property upon which there is now either a main line abutting the property or a switch running to it?

A. Speaking of trackage, I mean property that can be served by switching service.

Q. Right now without constructing switches?

A. I mean property that can be served.

Q. By tracks already in?

A. I guess practically all of the property is served by tracks. If there should be an isolated piece I would not exclude it, because it could be readily served.

Q. And this upward tendency you say has been going on for ten years?

A. Yes, ten years.

Q. What portion of the increase of it, the value of property, has taken place—what proportion of the ten years had taken place say in the last three years—I am speaking generally now?

A. I believe a forty per cent increase has taken place in the last three years?

341 Q. Forty per cent?

A. Yes.

Q. What per cent in the last five years?

A. I believe fully sixty per cent.

Q. Prior to five years ago the advance and increase was very slow?

A. No, it was quite marked during the five years.

Q. Take the last five years then, Ralph, what has been the increase in value of property, say on the East side, speaking generally now, and of a general average increase?

A. There has been an enhancement—I am going to apply this to the business district or contiguous to it—there has been an advance in the business district and property contiguous to the business district of about two hundred per cent, on an average in the last ten years, I should say.

Q. Take it in the last five years, what has been the increase of the trackage property in the last five years?

A. It has increased from two to three hundred per cent.

Q. Two hundred to three hundred per cent?

A. Yes.

Q. You arrived at that judgment in the same way, I suppose that you fix the value on this property, what you know in a general way of the growth, and not upon any particular sales of property, but in a general way?

A. I base it upon the average sales and the average opinion that is current among people who own real estate.

Q. You think it has increased from two to three hundred per cent in the last five years?

A. I do, in trackage property, yes.

The MASTER:

Q. The trackage property increased from two to three hundred per cent?

342 A. In the last ten years, yes.

The MASTER: That is due to the fact of the railroads being accessible.

A. No; because there has been a vast increase in jobbing, manufacturing and warehouse industries in Des Moines in the last ten years; practically trebled, in my opinion.

The MASTER: You mean available trackage property?

A. I mean trackage property that is available and can be served by switches without great expense.

Q. Now, then, Ralph, and I intended to develop that idea of increase as we went along, you say one thing you took into consideration when you were trying to arrive at the value of this property was typical sales. Do you know of a single sale of trackage property east of the river and west of East Ninth, of two blocks or two blocks and a quarter, in the last ten years?

A. I said typical sales and the average of opinion.

Q. I mean, do you know, if I understood your other answer right, do you now know of a single sale of that kind within the limits spoken of?

A. Yes, I know——

Q. I mean two blocks and three quarters?

A. No, no; there has been — such sale at all.

Q. A single block?

A. No such sales at all.

Q. Did you go over all *over* this property, Ralph?

A. I didn't go over the property, because I had been thrown in that neighborhood for the last twenty years; I know every inch of it.

Q. Right east of this plant, in the open space east of it and south of the Soap Works over there, the ground is about ten feet

343 lower?

A. From ten to twelve feet lower, yes.

Q. In other words, the natural level of all the ground where this plant stands is from seven to ten feet below its present fill.

A. I would not like to say that, because I might assume it was so, but I don't know. In the past twenty years it has not been so.

Q. The old bottom popla*t* trees are growing yet at the plant so

you can see the level just east of the large holders; did you notice that the other day?

A. You mean south of Market street?

Q. I mean south of market and north of Elm, two big cottonwood trees are growing there now.

A. That is very low, that ground is.

Q. Right across, take Elm Street itself, and the Q. track that runs there, is laid upon a fill that is probably ten feet high?

A. Approximately, yes.

Q. Isn't that so?

A. Yes.

Q. Now that level, the grade is built upon the old original bottom level of the Des Moines river?

A. In that district, yes.

Q. Now, south of Elm street the Gas Company has how many lots?

A. Two lots.

Q. What is the description of those two?

A. They are nine and ten in M.

Q. And those two lots the Gas Company has a part of their machinery on.

A. They have an oil tank I believe.

Q. Two large tanks?

A. I believe so.

Q. The ground was excavated there to build those large tanks and thrown up east of it?

344 A. Yes, they did excavate some ground there.

Q. What is the size of Lots nine and ten?

A. 132 feet square, the two together.

Q. It represents a quarter of a block?

A. Quarter of a block.

Q. Who owns the quarter of a block immediately south of Lots nine and ten?

A. I don't know out of my own memory. I think they are owned by probably three different parties.

Q. Did you make any inquiry?

A. I never did.

Q. I mean as to what that property could be bought for?

A. No, I never did.

Q. Who owns the southeast quarter of that block?

A. 4, 5, and 6—there is a Greiser family owns part of that; and there is another block in there that was formerly owned by Stahlgren; they may still have an equity in it.

Q. This Greiser property is that in an estate?

A. No; I think it is owned by the old lady.

Q. Did you inquire what it can be bought for?

A. No.

Q. Do you know what it could be bought for?

A. I haven't any idea.

Q. Do you know what it could be bought for when you put the value on the Company's property?

A. I did not.
Q. Who owns the northeast quarter of that block, Lots 7 and 8.
A. I never actually knew, but I have understood that it belongs to the Q. railroad.
Q. Did you look that up to see when you were fixing the
345 value?
A. No.
Q. Did you make inquiries as to whether it was for sale or could be bought?
A. I did not inquire.
Q. Who owns the northeast quarter block of Block A, the block immediately south of Block B and south of Elm street?
A. I think the Q. owns the north half of it.
Q. Who owns the south half?
A. Out of my own memory, I don't know.
Q. What is it held at?
A. I am not familiar with it.
Q. What was it held at when you put the value of $221,000 on this Company's property?
A. I am not familiar with what it was held at.
Q. Who owns the northwest quarter of Block A.
A. Lots 4, 5 and 6—I think the Q. owns the greater part of it.
Q. Did you look that up?
A. Just from the lay of the land; in fact it had never been occupied for years and that makes me believe the Q. owns it.
Q. Did you make any inquiry as to what that was held at?
A. That is Q. property; it is not for sale.
Q. What value did you put on Lot- 9 and 10?
A. I estimated it worth nine thousand dollars.
The MASTER: In Block M?
A. Yes.
Q. Did you make any investigation as to who owned the southwest quarter block of Block L, Lots 1 and 2?
A. That is railroad property.
Q. One and two, all of it?
346 A. Yes, it is owned by the Q., in my opinion.
Q. And the northwest quarter?
A. That is railroad property.
Q. Three and four?
A. That is railroad property.
Q. And the northeast quarter?
A. That is five and six; that belongs to the railroad.
Q. And the southeast quarter?
A. Seven and eight; that is railroad property.
Q. Did you ascertain anything about the value of that property?
A. There is no way — getting at the value of it, because I have been told a number of times the railroad won't sell it.
Q. Anyway, you didn't make any inquiry at the time you put a value on the Company's property?
A. No.
Q. Who owns the southwest quarter of Block K?

A. It is owned by some eastern man.
Q. Did you ascertain anything about its selling price?
A. It is not for sale.
Q. Did you make any inquiry at the time you put in this value?
A. I did not.
Q. Who owns the southeast quarter of that block?
A. The Prouty Soap Company.
Q. They have a pretty good factory on Lot 8?
A. No, on seven and eight. They occupy virtually all of seven with buildings and tankage.
Q. All that territory around there, Lots seven and eight, and all of Block L is exactly the same character of property?
A. K lays high.
Q. Part of it is high?
347 A. All of it is high.
Q. The south half of K just immediately south of eight, there is a big hole there now, seven or eight feet deep which isn't filled in as you go across the street?
A. On the other side, yes. But K lays but a trifle below street level.
Q. Now what value did you put on three and four in Block K?
A. Fifteen thousand dollars.
Q. Then if lot- 9 and 10 was valued at two thousand dollars in 1908, it has increased about 450%.
A. Yes, in my judgment, if it was valued at two thousand dollars it has.
Q. In the two years there would be over four hundred per cent increase in that valuation.
A. Yes, if that is the case.
Q. What is there there in that part of town that you know of, Ralph, that would increase the value of that property four hundred per cent in three years?
A. The fact that there is a demand for trackage, and trackage every year is getting scarcer.
Q. Well, has there been any sold there in the three years that you know of?
A. There has been one piece sold in M—no, I don't know; the southeast corner of Third and Vine; I don't know the number; Lot Four, I believe it is.
Q. That wouldn't be in Block M at all?
A. No.
Q. I am talking about Block M?
A. I don't know of any sales there.
Q. There isn't any trackage or industries of any kind in
348 that block or in the block east or south of it?
A. There is no trackage available south of it.
Q. That is, there is no present trackage.
A. That is practically the only piece of property, with maybe one exception that can be had for trackage purposes from the river to east Fifteenth Street.

Q. What is to prevent a track going right straight down Second Street clear to the river?

A. There isn't anything to prevent it if you can get permission and are willing to foot the bill.

Q. Isn't that the way to get trackage?

A. No, trackage in the business district is already created.

Q. Suppose there is an industry down there to be served by the railroad, isn't that the way to get trackage, for the railroad company to build a spur?

A. You have to pay the bill and get the right of way for it. Railroads don't build any spurs until the industry is there. The trackage already exists in the business district.

Q. But it exists because there was plants there?

A. No, it existed even prior to the plants in a great many instances.

Q. Wasn't there a track put over here at Brown-Hurley-Camp hardware after they built their building there?

A. It was built there about that time.

Q. They got a railroad to run the spur up there?

A. The city gave permission.

Q. It didn't cost them anything?

A. There was no grading necessary. Let me differentiate. If you are on Mr. Hubbell's trackage, he will lay a switch without expense to you. No other road will do it.

Q. You don't mean, however, to say, as secretary of the
349 Booster Committee that if an industry wants to come here to Des Moines and locate anywhere down here on this bottom, or on this level east of town, that they would have to pay to both the city and the railroad company for getting trackage facilities?

A. It depends upon where it is. If the city can grant a road without damage, it will. But to the Rock Island the Q. or the Northwestern you have to pay. We have the Clark Gravel Company of Columbus, Ohio, contemplating coming to Des Moines on East Twenty-fourth, near the Rock Island tracks. The Rock Island through its engineering department compiled an estimate of $799 to put in a track there long enough to hold three cars near the industry. I have personally agreed without authority of the Committee to pay that myself.

Q. Isn't it your understanding that it is the business of the railroad companies to furnish service for the industries here in Des Moines and that they are compelled to do it?

A. I guess you can compel them, but you have got to pay the bill. The Rock Island informed me that there is no way to get a track free.

Q. There is no way—a shipper in Des Moines who doesn't happen to have his plant on the main line of some of these railroads, no way that he can have transportation service without building a track and paying for it?

A. If he happens to be located on the Des Moines Union or the Des — Terminal and Des Moines & Northwestern, he can get a free

track because those roads are controlled by Mr. Hubbell and he will do it.

Q. You don't mean to say—leave out Hubbell's proposition—that before a company or an individual operating a manufactur-
350 ing establishment of any kind in Des Moines that does not happen to — located on a main line of some of these railroads, before he can have transportation facilities he must build a spur to this plant?

A. The Q. railroad officials tell me the only way you can get a track is to pay a rental of five per cent. The Rock Island tell me the only way you can get a track is to pay for it. The Northwestern people tell me anyway you can get a track is to pay for it, and they won't go to a great amount of trouble either.

Q. You as Secretary of the Booster Committee must know all about this thing. Just give me the name of one industry in Des Moines you know of that is paying for sidetrack service?

A. I have got into the work only in the past six month- and have not been familiar with the location of any of the new industries that required trackage in that time. Now, practically all of these tracks I have referred to are on streets coming through town, main lines, and in every instance practically there is a track along the north and south line. If a man wanted a piece of property he didn't have to worry about the track.

Q. How did Brown-Hurley get their railroad?

A. They got permission from the city, and Mr. Hubbell and the Des Moines Union built it.

Q. How did these people get it on Eighth and Cherry?

A. The Des Moines Union built it.

Q. Did they pay anything for it?

A. Mr. Hubbell is at all times willing to build for them.

Q. The truth is there hasn't been a single plant located in Des Moines in the last ten or twelve years anywhere along these railroads or off the main line that had to pay for their spurs?

A. Those located on the three roads controlled by Mr. Hub-
351 bell have not had to pay; yes. The Des Moines Hosiery Mills had to pay to get trackage on the Rock Island in the last two years. It took them more than two years to get it in, Mr. Rollins told me.

Q. Do you know how much they had to pay, how much it cost to get in?

A. I presume it cost them $1500 or $1800.

Q. Can you think of another instance?

A. That is the one I have in mind at present.

Q. Wasn't there something about that far different from any other place in Des Moines?

A. Yes, they had to——

Q. Cross several tracks?

A. No, none at all. They had to acquire a piece of property in order to get them room to make the turn.

Q. That is the Hosiery Mills?

A. Yes.

Q. Didn't the Rock Island have a couple of switches running off to the fair ground there?

A. No, they used what is called a long track and ran from the main line into the fair ground; ran westward four or five blocks and it was a branch off of this long track that went into the Hosiery Mills.

Q. Let us take the Hosiery Mills—you think it cost about $1500?

A. I should judge so.

Q. We would be perfectly safe in saying it cost $2,000?

A. I imagine that would be approximately correct.

Q. Where is the Hosiery Mills?

A. On 28th and East Dean.

Q. How far is that mill from the Capitol Building?

A. It is a mile and a half.

Q. Can you point it out on Exhibit 6—they own all of the block?

352 A. Between 27th and 28th on the south side of Dean, north of the Rock Island track.

Q. That Hosiery Mills property is almost due east of the Capitol Building?

A. Yes, almost due east.

Q. And it joins or rather abuts on the Rock Island Railway?

A. Yes.

Q. How far is it from the present post office?

A. Two and a half miles approximately.

Q. How far from the court house?

A. About two and three quarter miles.

Q. How many lines of railway are immediately near or accessible to this Hosiery Mill?

A. The Rock Island is the only one available.

Q. Isn't the K. D. south of it?

A. The K. D. and Rock Island is joint.

Q. They operate two separate lines?

A. They have two main line tracks.

Q. How far is it from the Wabash?

A. About four blocks.

Q. What is the property worth right now in that vicinity by the front foot, average property all around there?

A. It's worth $18 a front foot north of the track and it's worth $9 south of the tracks—wait a minute; I will take that back. It is worth about $9 north of the tracks and about $4 south of the tracks.

Q. Those little homes out there, where there are any, do you remember the size of those lots?

A. Fifty foot lots.

Q. How many of them in a block?

353 A. I think there is something like eight in a block. There are several different plats out there.

Q. I am talking about this immediate neighborhood of the Hosiery Mills.

A. I think eight in a block.

Q. That country all around there, around the Hosiery Mills, north and south of it, east and west of it, is high and dry, is it not?

A. It is all about level. It is pretty wet in wet seasons because it has not proper drainage.

Q. How is it just west and north as to being nice and dry?

A. Well, immediately west and north it rises, it is higher.

Q. Starting at the Hosiery Mills and going north, you go across the country immediately west of the fair grounds?

A. Yes, sir.

Q. All that is open space?

A. Yes.

Q. As you go further east you strike the Great Western road and you follow the Great Western road north as far as the west side of Grand View Park on practically the same level?

A. No, there is some of that property very wet.

Q. There is a little slough over at the corner, the northwest corner of the fair ground?

A. There is a draw there; starts at the fair ground and runs clear through east Fourtieth Street.

Q. That is all being drained out right now; there is an improvement in progress right now?

A. I wasn't familiar with it.

Q. Don't that ditch serve that territory now?

A. It would if it had an outlet.

Q. What is the average price of that ground per front foot,
354 take the whole strip of country there?

A. I wouldn't like to take that whole strip of country; it runs into farm land.

Q. I don't want you to go out into the farms.

A. South of Easton Boulevard and north of the Rock Island tracks it is worth from four to nine and ten dollars a front foot.

Q. How far east and west would you extend that?

A. I would go to about Twenty-second street and east of the fair ground.

Q. Twenty-second Street west would bring you what distance from the Capitol Building.

A. Approximately a mile.

Q. Now, Ralph, if this ground, Lots 3 and 4 in Block K, if that ground was valued in 1908 at $2500——

A. It never was valued at that.

Q. That is not the question I asked you, if you will notice the question: If it was valued by the owners of it in 1908 at $2500 according to your judgment it has increased in value in the last three years seven hundred per cent?

A. $2500—six hundred per cent. I called it worth $15000. The increase would be five hundred per cent, but it would be worth six times as much, if it was only worth $2500 in 1908.

Q. What did you take as the basis of the value of property, the asking value or selling value, or what?

A. Why I take into consideration the plots available and the opinion of the owners as to what they are worth?

Q. Well, if the owner was offering to sell to you or a customer of yours, if you were in the real estate business, a piece of ground for

$2500, would you consider that fact as entering into the question at all?

355 A. It would depend a little bit on whether the other property around there was considered worth more money, and if it was, I would think the fellow was very rash.

Q. In other words, you would think he wasn't asking enough?

A. I would think he wasn't posted.

Q. Did you get the selling price of any property down in that country before you fixed this value?

A. Why, yes; I knew at what several pieces of property was held at out there, or were considered worth.

Q. What particular property did you ascertain the asking price for?

A. The Iowa Iron & Metal Company own a quarter block on Third Street between the Union and Rock Island tracks; the building in my opinion is valueless and they ask $20,000 and I assume that wouldn't buy it.

Q. He wants to sell the building and considers it worth something?

A. I don't believe he does. He has not expressed that opinion to me. He said it would pay for tearing it down.

Q. Who owns that property immediately west of the Gas Plant on the west side of the river?

A. The city, I think; and next comes the Kratzer Carriage Company.

Q. I mean the property right south of the Kratzer Carriage Company?

A. I think some member of the firm of Mennig & Slater and some member of C. C. Prouty owns the other part.

Q. What business enterprises if any, are located now on that?

A. The Prouty firm occupy their part of it with stables. Mennig people use their property as an over-flow storage house.

Q. The property I have in mind is a large fallen down old brick building?

A. Prouty is maintaining as much of that building as he requires for a barn and letting the balance go.

356 Q. What is that block worth, do you know?

A. Let's see; it is 132 by 280; I should judge it is worth $40,000.

Q. It can be bought for less?

A. I seriously doubt whether you can buy it at all or not. Neither party have ever shown any disposition to sell any property.

Q. Do you know this property over on the east side of the river, the city just took over a year or two ago, south of Locust and north of Walnut street bridge, the Patterson property?

A. On the corner of First and Walnut?

Q. Yes.

A. Yes, I do.

Q. Do you know what the city paid for that?

A. They paid somewhere close around to $10,000; I think it was $8,700.

Q. How much ground was it?
A. There was a serious question as to how much.
Q. About how much?
A. I think there was something like—well they may have had a fifty foot lot; the depth may have been approximately eighty feet; although they claimed something like 140 feet.
Q. It is a block long and runs from Walnut street up to Locust?
A. Oh, there was a great many other people involved besides Patterson.
Q. Take the Patterson property alone then.
A. Something over $8,000.
Q. How much ground was there?
A. I believe approximately 50 by 80.
Q. The city paid approximately for all that ground about $150 a front foot, didn't it; the McGrew property and Patterson property?
A. Approximately that, yes.
357 Q. That is this ground that lies immediately across the river from the library building, between these two new bridges?
A. Yes.
Q. The new Locust Street bridge was almost completed when they bought it?
A. Yes.
Q. The city hall was already located?
A. Yes.
Q. And the contract for its building let?
A. Yes.
Q. The Coliseum was in process of construction?
A. Yes, sir.
Q. And the post office was being built?
A. Yes.
Q. All in that time now that the city bought that ground?
A. Yes.
Q. Do you know where this little peanut roaster factory is, east of the Capitol Building?
A. On Twentieth and the Great Western tracks.
Q. What is ground worth a front foot in there, the average tract?
A. Immediately along the track?
Q. Yes, and away from the track.
A. Away from the track I should say it was worth about seven dollars a front foot.
Q. Away from the track?
A. Away from the track, yes; it would be $350 a lot.
Q. How far is that from the Capitol Building?
A. It is approximately three quarters of a mile.
Q. And about a mile from the post office?
A. It would be more than that; a mile and a quarter to the post office.
358 Q. That country in there is high and dry and the lots are free from anything that would make them unavailable for most any kind of purpose?

A. They lack drainage, is all.
Q. You mean lack sewerage?
A. Yes, sir.
Q. Now, take the base ball park, that is south of this little factory we are talking about?
A. Yes, sir.
Q. Who owns that tract?
A. It has recently changed hands; I don't happen to know the man's name; he is rumored to be from Minneapolis.
Q. The tracks immediately south of that, who owns that?
A. I assume it is owned by the City Railway, or affiliated interests.
Q. That is the circus ground?
A. Circus ground.
Q. Where the base ball grounds are and on east there is that all high and dry?
A. Yes, that is all high and dry.
Q. Nice, open property?
A. Open property.
Q. Just as accessible to railroads as the Hosiery Mills, by putting in a spur and side tracks?
A. It is, provided you can own the right of way or secure consent from the city. You would have to buy some property and secure the consent of the city.
Q. Where a property abutted a street, the railroad could go down the street if the city granted the right?
A. Yes.
359 Q. Where they are off the street and off the railroad, they would have to buy the right of way or make arrangement to get it, just as the Hosiery Mills?
A. Yes.
Q. Do you know where Wood Brothers factory is?
A. I do.
Q. Is that a large concern?
A. It is a very substantial concern.
Q. Use a great many men?
A. Employ between twenty and thirty in season.
Q. What do they make up there?
A. Band cutters and feeders that they attach on separators; they manufacture a separator and a traction engine.
Q. They put up a complete threshing outfit?
A. Yes.
Q. What is property worth in and about that factory?
A. That is low and it has only recently begun to be subdivided
A. Well it is all trackage property; all available for manufacturing and I would hesitate to place a value on it of more than $600 or $800 an acre, although I believe there is a movement there now which may increase the value pretty soon.
Q. Take all this territory I have just now been talking to you about, east of nineteenth street, and north of say 7 or 8 or 9 block south of the Rock Island main line, clear north to Easton Boulevard, all of that territory in there is much cleaner and more de-

sirable in every other way than possibly this property over here where the Des Moines Gas plant is located, isn't it?

A. Well now that is a question you would have to define your answer. For instance, if it was some one who had no out of town customers or did their business entirely by mail and was shippers and receivers in car loads, it would probably be just as good
360 as this down here. But if they had to be within reach of customers or had to depend upon the government mail service, it would not be anywhere near as desirous.

Q. You take a concern that does its commercial business in an uptown office or building and serves its trade through pipe lines, then, what do you say?

A. In other words, the Gas Company?

Q. Yes, sir.

A. I do not possess the technical knowledge to answer that. I would not say whether it was as available or not. There would be a great many things I would be required to know to answer that question; and I decline to answer.

Q. What is there down around that plant that looks good to you at all?

A. Well the American Linseed Oil Company; the Iowa Iron & Metal Company——

Q. I mean in the surroundings; its location and the people living there and the character of the buildings and the homes?

Mr. READ: I wish you would complete your answer to the last question.

Q. That part of town down there where the Des Moines Gas plant is is about as ragged and dilapidated a part of the city as we have anywhere?

A. It is about as dilapidated from a residence viewpoint as any trackage property; none is desirable from a residence viewpoint.

Q. Right east of it within a stone's throw, if it was thrown by a woman, is a great big hole that fills with water every time there is a heavy flood of water and gets from seven to ten feet deep and covers nearly half a block?

A. You mean east of the gas holders?

361 Q. East of the holders.

A. There is a low piece of ground there, being rapidly filled, more than half filled now.

Q. As it is now it is an unsanitary and ugly place?

A. It is not handsome to look at.

Q. The same is true right south of these two holders, south Elm street?

A. It is very low.

Q. Every time you have high water those two holders are practically surrounded with water?

A. No, not entirely so, because it just so happens there is a piece of ground in there south of Elm street, between Elm and Raccoon and south of Raccoon that has never been overflowed but one time, I believe.

Q. The street and railroad is graded up there about nine or ten feet?

A. Yes, to reach the bridges.

Q. The grade I think on Elm Street as it approaches the East shore is eight or ten feet above the natural bank of the river?

A. Yes, sir.

Q. Take the residences down there, what few there are, what is the character of them?

A. Why some of them are owned by people who have lived there for years, pretty well kept; others have fallen into a bad state of repair and are occupied by rather a low grade of citizenship, a few of them, particularly on the river bank.

Q. And the walks are all dilapidated and out of repair?

A. In some places.

Q. What is this ground in Block T, that you say the Gas Company owns; anything on that?

A. Not on the property that they own; there is nothing but a storage yard.

362 Q. What do you mean by storage yard?

A. A place they pile up barrels and at times pipe and other material used in construction work; and I believe they use it in storing some material they use in the purifying house. I don't know what it is.

Q. They have five lots in that block?

A. Yes.

Q. That is low-land, isn't it?

A. No, it is as high as the street level.

Q. What did you value that at?

A. I valued it at $25,000.

Q. Those five lots at $25,000?

A. I did.

Redirect examination by Mr. READ:

Q. Mr. Bolton, I take it from what you say that the immediate surroundings there on the east side adjacent to the Gas Company are not particularly pleasing to the eye?

A. No.

Q. They are not a thing of beauty?

A. No; vacant lots that are ill kept.

Q. That at one time was a residence district of Des Moines, at least south of that?

A. At one time, yes. It was all a residence district with the exception of the railroad property.

Q. That has given way however to the railroads and to the factories?

A. The railroads and factories have driven them out.

Q. So that the residence buildings are fallen in decay and it is not kept up as a residence district?

363 A. No, it is not a desirable residence district.

Q. What about it as a manufacturing district?

A. It has grown and is becoming more and more desirable and in demand.

Q. What is the fact as to it being desirable for manufacturing and storage purposes.

Mr. Byers: That was all gone over in chief.

A. It is desirable for manufacturing and storage purposes.

Q. Now, after this excursion which Mr. Byers has taken you around on over town, after your attention has been called to these various localities, has your judgment as to the value of the Gas Company property been shaken?

Objected to as being incompetent and improper re-examination.

A. No.

Q. You don't care to modify your judgment on that question?

Same objection as last above.

A. No.

Q. Immediately east of Fifth or Sixth street the ground in Des Moines rises to Capitol hill?

A. Yes.

Q. And it extends out at a high level until you get to Eighteenth or Twentieth street?

A. About Sixteenth street.

Q. Then intervenes what used to be known as the Agency bottom?

A. Yes, sir.

Q. Extending into the bluffs on Four Mile creek?

A. Yes.

Q. To what use has that intervening ground been devoted?

A. To residences for working people.

364 Q. Do you know whether or not that ground in there has been platted into lots?

A. Practically all has been platted into lots.

Q. To what extent are the lots built upon by residences?

A. Oh, I presume the ground is probably fifteen per cent occupied by residences; nearly every block has one, two or three in it.

Q. People have moved out there in order to acquire more ground to occupy in connection with their residences, larger tracts?

A. Yes, sir.

Q. However, as you go south in that district along the Rock Island Railway Company, you find the Hosiery Mills?

A. Yes.

Q. That is the only manufactory out there?

A. Yes, sir; along there.

Q. I wish you would speak a little more definitely your views as to the difference between that remotely situated trackage property and property such as the Gas Company's property, with respect to the uses that may be made of it and the uses to which it may be devoted?

but a man buying property will take into consideration the conveniences of the mails and the problem of delivering parcels of freight less than car load, which is a matter of big consideration. For instance, a plant located like the Hosiery Mills are are at a

very heavy expense in delivering less than car load freight; where, if they were down town they would be able to deliver car loads quicker and get them delivered quicker and cheaper.

Q. According to your opinion accessibility and nearness to the business center is a factor?

365 A. Yes, sir. I would figure what I would have to pay additional out there. The difference of freight and the teaming of men would pay interest on the increased investment.

Q. Then it depends entirely on the character of the business?

A. Entirely on the character of the business.

Q. What is the fact as to whether there is a demand, or has been a demand for inside manufacturing storage and factory purposes?

A. There is a demand for inside property as the city grows and as the business enterprises of the city expand in their business operation, there is a constantly desired and acquired ownership.

Q. You were asked if you knew of a sale of so much as two blocks over on the east side in the vicinity of the Gas Company property; you answered you did not?

A. I did not.

Q. Do you know whether so large a tract as that can be purchased, is it on the market, available for purchase?

A. There is no large plot like that being offered for sale. The question whether you could buy it, is simply whether you could offer more money than it would be considered worth.

Q. Is there any tract as large under one ownership?

A. No, excepting the C. B. & Q. Railroad.

Q. That you say is not for sale?

A. No.

Q. The Rock Island Company owned some property?

A. Yes, but not as large as that.

Q. The railroad property is not on the market for sale, is your understanding?

A. No, I am told it is not for sale.

Q. If you are seeking for so large a tract in West Des Moines district, do you know of a tract under one ownership, for sale, within the trackage district?

366 A. I do not.

Q. Have you investigated that?

A. I have thought of it but not investigated it; but I am pretty familiar with the ownership of all the trackage property. I do not know of any trackage property as large as that for sale.

Q. In other words, if on the east side you were to acquire so much as two blocks even, you would have to assemble from different ownerships?

A. From a great many owners.

Q. What is the fact as to whether that would be an expensive proposition?

A. It would be expensive. You would have to pay more for it proportionally than for small parcels isolated.

Q. You would expect to have to pay more than the normal prices for small lots.

A. Yes, sir.

Q. In that district there are no stores or small shops as I understand it?

A. None along Elm, Vine or Market.

Q. At least it is not a retail district?

A. Not at all.

Q. For what is the demand over there, small or large tracts, I mean 22 foot average or what?

A. Practically every one who wants trackage wants at least a quarter of a block.

Q. So you regard that as the probable unit.

A. As a minimum.

Q. Has there been a demand or is there likely to be a demand for larger tracts even than that, in Des Moines, along the railroad tracks?

367 A. I believe as Des Moines grows there will be a demand for large plots jointly owned?

Q. In the outside districts, manufacturing districts you have referred to is the Des Moines Union Railway tracks serving those pieces?

A. No, not any of that property I have been examined on.

Q. Those districts are served simply by one railway company?

A. They would be served by the Great Western or Rock Island.

Q. Your attention was called to the Patterson property on the corner of East Walnut and First street-; do you know the size of those lots as originally laid out—referring your attention to the Patterson property; do you know the size of those lots?

A. I see on the plat book they are 40 by 47.

Q. And the piece north to which your attention is called?

A. The plat shows the extreme end of the block runs to a depth of 110.

Q. There was in that controversy a question as to whether the lot had been extended into the river by accretion?

A. It was contended that it was filled.

Q. Well, on the other side it was claimed it had been artificially filled?

A. Yes, sir.

Q. Therefore Patterson didn't own beyond the 47 feet?

A. Yes, sir; that question was involved.

Q. Were you one of the appraisers on that?

A. I was not.

The MASTER: It is understood that the witnesses on this question are to be limited to six on both sides.

Q. You were asked your valuation on Lots 3 and 4 in Block K: you thought they were worth fifteen thousand dollars?

368 A. Yes, sir.

Q. You was also asked I believe the valuation of the lots in Block M and you answered——

A. Nine thousand dollars.

Q. You spoke later on having included something, because of the

property being in one body; does this valuation include the twenty per cent added?

A. I priced each block by itself; then arriving in my opinion as to the value of all the property, I added twenty per cent to my figures, on account of contiguous ownership; that would make K jointly owned with other blocks worth fifteen thousand dollars.

The MASTER: You appraised that as nine thousand dollars?

A. As an isolated property; then as a contiguous ownership it would be worth twenty per cent more.

The MASTER: You added twenty per cent to the whole of it?

A. Yes, sir.

Q. Speaking generally, what is your idea about isolated property as compared with property in a contiguous body?

A. The more property you can get under one ownership, the greater its value would be per front square foot, or any other way. Joint ownership in my opinion always enchances the value of any property.

Q. You don't mean joint ownership?

A. Single ownership of joint properties.

Recross-examination by Mr. BYERS:

Q. The two lots in M are off by themselves?

A. There is a street intervening.

369 Q. The same is true with three and four?

A. They are divided by streets.

Q. So, Ralph, if the owners of this property in Block T, the five lots in Block T fixed a value on it of $760, that is that river front ground, then according to your figures it has increased in value about three thousand per cent?

A. They are mistaken about that, in my opinion.

Q. Well, if they fixed that value, you would put it three thousand per cent higher?

A. If that was the actual value at that time, it has increased three thousand per cent.

Q. If it was sold on the market within the last ten years for seven hundred and sixty dollars, then you would say it has increased in value to three thousand per cent?

A. If it had been sold and the man who sold it had not made a mistake.

Q. Oh, well, property sold on the market, you take that as the value?

A. Not always.

Q. Didn't you understand counsel that you were to put a market value on the property—what do you understand by market value?

A. Well, the market value would be the average—one sale would hardly establish a value; one extreme low sale wouldn't.

Q. What does establish the market value?

A. The average value at which property is held and sold.

Q. Now, then, has all this testimony of yours as to this value been based simply upon your judgment as to what it is worth?

A. It has been based upon my judgment as to what it would cost to buy, or is sold for in the hands of competent men.

Q. For instance, if this corner over here on Sixth & Walnut was listed with real estate men in this town for sale at a hundred
370 thousand dollars, and you were asked to state the market value of that property, what would you put it at, if you knew it was listed with all the real estate men for a hundred thousand dollars?

A. I would take into consideration what other people around there considered their property worth.

Q. Then you are not fixing a market value at all, you are fixing a value for these gentlemen that you base upon your judgment as to the growth and development and location and accessibility in that respect, as to what it would sell for?

A. No, I have not. I have taken into consideration what property on an average could be bought and sold for over there.

Q. Then if it sold for seven hundred and sixty dollars, would you consider that?

A. It might be a freak sale; in other words, sold below the average value. It might have been sold by some one who didn't know; he might have been a non-resident.

Q. If it was sold below the average value, the price at which it did sell would be one of the items that would go into your average value?

A. Every price would.

Q. Suppose you were fixing the market value on this property, and not what might be your judgment alone, but a market value; what do you say that property would sell for on the market here tomorrow, if it was put up for sale?

A. I don't know that it could be sold tomorrow; but I think it can be sold for $25,000.

Q. If it can be sold now for $25000 and sold less than ten years ago for $760, what has made that difference in the value of the property?

A. When it was sold for $760, the man either doubted his
371 ownership or else didn't know what the property was worth around there.

Q. You are testifying to your own price and to the price the people who own the property would put on it if they wanted to sell. You are fixing your price without respect to the owners asking or selling price?

A. I am fixing my opinion as to what the average buyer and seller would receive and pay for the property. The average at which people would buy and sell property would be its market value. The fact that one man would sell for less than the average, would not establish the market value.

Q. In other words, if there was ten bushels of potatoes in one wagon down there, priced by the owner at a dollar a bushel, and there was another wagon full of potatoes priced at $1.50 you would say the market price of both wagon loads was the average price of the two?

A. No; I would take into consideration what other potatoes would be worth.
Q. We are talking about these two particular loads.
A. They are not enough to establish a market.
Q. Do you know what Mr. Haines paid for these lots?
A. I never knew.
Q. Didn't you ask him?
A. No.
Q. Why didn't you?
A. I didn't think it entered into it.
Q. You didn't think it made any difference in fixing the value?
A. No, sir.
Q. Didn't you ask what he paid for the lots in M and K?
A. No, I never asked him.

Q. This growth, what per cent of the growth has there
372 been in the population in the last five years in Des Moines?
A. About seventeen per cent.

Q. In round numbers what would that be?
A. About eleven thousand.
Q. Is the growth continuing in the city, still growing?
A. Yes.
Q. What in your judgment will be the growth in the next five years?

Objected to as incompetent, immaterial and not cross examination.

A. I think we will have between ninety-five and 100,000.
Q. All this property will continue to increase in value as it has in the last four or five years?
A. I think it will increase; I don't know whether it will increase quite so rapidly.
Q. What has been the increase in the value of property on Locust Street east of the river and west of say Third Street in the last five years?
A. It has more than doubled.
Q. You mean it has increased then a little over a hundred per cent?
A. A little over a hundred per cent.
Q. That is the main thoroughfare between here and the Capital?
A. Yes.
Q. And just east of the Locust street bridge, between that and Walnut?
A. Yes, sir.

Excused.

Attendance, R. P. Bolton, 3 days.

373 TWO O'CLOCK P. M., MONDAY, *July* 17, 1911.

H. N. PORTER being called on the part of the complainand and sworn and examined in chief by W. L. READ, Esq., testified as follows:

Q. Where do you reside?
A. Des Moines, Iowa.
Q. How long have you resided in Des Moines?
A. About eighteen years.
Q. What is your age?
A. 41.
Q. In what business are you now engaged?
A. Real estate, loaning -oney and fire insurance.
Q. In what way are you engaged in real estate, on your own account or firm or corporation?
A. Both in the purchase and sale of property on our own account and as agent for other people.
Q. How long have you operated in the real estate business in Des Moines?
A. About 12 years.
Q. How long have you been associated with the Percival Porter Company?
A. Well it was a partnership, Percival and Porter about 12 years ago and then was later incorporated in a corporation?
Q. Is that firm engaged in loaning money?
A. Yes, sir.
Q. For others?
A. Yes, sir.
Q. On real estate?
A. Yes, sir.

Q. Who is active manager of the concern now?
374 A. I am.
Q. In conducting the business do you make appraisements and valuation of real estate for the purpose of loans?
A. I do.
Q. To what extent, what volume of business per annum?
A. From one to 300 thousand dollars of loans a year.
Q. What kind of real estate have you or your firm or your corporation handled?
A. We handle principally Des Moines real estate and acreage adjacent to Des Moines.
Q. To what extent have you made a study of the subject of real estate values in Des Moines?
A. Well I have made that business for twelve years, the studying of values in Des Moines, comparing the same with other cities in the country of the same size.
Q. To what extent have you followed prices and values on property in Des Moines?
A. I have watched the values of real estate in Des Moines as evidenced by what they are held for by owners and what they are sold for for twelve years.

Q. Does that apply to business property?
A. Both business and residence and acreage.
Q. Are you familiar with the location of trackage property in Des Moines?
A. Yes, sir.
Q. And have been?
A. Yes, sir.
Q. To what extent have you investigated such properties and the situation with respect to such properties?
A. Well I have been appraiser on different properties lo-
375 cated on trackage and I have sold property on trackage and I have watched the sales that have occurred through others and by others.
Q. Have you served, and if so to what extent, on appraisement boards for the valuation of real estate?
A. Yes, quite extensively in the past ten years.
Q. What has been the general trend of real estate values in Des Moines for the last ten years?
A. The trend has been upward.
Q. To what extent, to what degree?
A. Well to a very marked extent in the last seven or eight years.
Q. Can you indicate by any percentage or other means something of the growth of values?
A. Yes, taking retail—what is known as the retail center of Des Moines, the inside retail district, properties have increased from $1000 a foot to $4000 a foot, that would be an increase of 400 per cent.
Q. That you speak of as the re*ant*-l center?

COURT: Be an increase of 300 wouldn't it?

A. Yes, that is right, an increase of 300 per cent.
Q. Where is the retail center of west Des Moines?
A. I would call the retail center as between—at Walnut street between Fifth and Seventh streets.
Q. Is there where prices have reached their highest level?
A. Yes, sir.
Q. And as high as $400 a front foot?
A. I think some property cannot be bought for less than $5000 a foot.
Q. You are speaking of actual sales then.
A. Yes, sir.
Q. The holding values are as high as $5000 on the properties?
376 A. Yes, sir.
Q. Do the prices on Walnut street decrease as you go east towards the river?
A. Yes, sir.
Q. To what extent, what is the general range in that direction?
A. Well they decrease to about at the river, I would say about $1000 a foot on Walnut stre-t. I spoke a minute ago about 300

per cent. I think that would be 400 per cent increase from $1000 to $4000 a foot.

COURT: 400 per cent would make $5000 wouldn't it? You have $1000 to start with.

A. Yes, I see.

Q. On Locust street what is the general range of prices from Eighth street east to the river?

A. Well the prices on Eighth street, on Locust, I would say would range from 3000 to 800; about $3000 down to $800.

Q. $800 as you go towards the river?

A. Yes, sir.

Q. On Court Avenue what is the range of prices?

A. Between what streets?

Q. Well from the court house east to the river.

A. I would say from $400 to $800 a foot. Some properties, corner properties perhaps might be held as high as 3000.

Q. You know where the property of the Brown-Campt Hardware Company is?

A. Yes, sir.

Q. And the Aarfield Pratt Howell Company?

A. Yes, sir.

Q. What is that property worth?

Objected to as incompetent and immaterial.

377 A. The property in the south side of Court Avenue has trackage and the property on the north side mentioned has trackage, the only property on the north side of Court avenue that does have trackage. That adds value. I think perhaps a thousand dollars a foot would be a fair value on that property.

Q. Are you acquainted with values on the east side of the Des Moines river?

A. Yes, to quite a fair extent.

Q. Where is the business retail center over there?

A. East 5th and Locust.

Q. What is the general range of prices and values in that part?

A. The property ranges in value I would say from $2000 a foot down.

Q. As you go west to the river?

A. Yes, sir.

Q. What is the range of prices on the east Locust street between 4th street and the river say?

A. Well from $250 to $500 a foot.

Q. What is the general range of prices on east Walnut street?

A. On Walnut I would say from $250 to $400 a foot.

Q. On Court Avenue from the river east to Fifth street?

A. About $200 a foot to $350.

Q. Speaking now of course exclusive of all improvements?

A. Yes, of course I understand.

Q. Where is the inside trackage property in Des Moines located?

A. It is located within about I would say about a half mile of the court house would be a fair limit.

Q. Can you refer to any district, take the west Des Moines trackage district?

378 A. It is located from—extending from First street to 10th street and the best trackage is along Vine and Market and Elm and some on Cherr- and Mulberry.

Q. What is the general range of prices on Mulberry and Vine of trackage property?

A. There is very little property to be had under $400 a foot. There is some as low as $300. I would say from 300 to $500 a foot.

Q. Did you comprehend in your answer the property south of Vine street the Hubell estate of F. N. Hubbell property?

A. There is some of the Hubbell estate property that he is leasing on as low a term as a hundred dollars a foot, but that is farther away. There is none of it for sale.

Q. Is there any of that property on the market for sale?

A. No, sir.

Q. Simply leasing the property?

A. Yes, sir.

Q. On the east side of the river where is located the inside trackage property?

A. From First street extending east to 6th or 7th streets and from Court Avenue south including Elm street.

Q. To what extent is property in that east Des Moines district appropriated by railroads?

A. Well the C., B. & Q. and Rock Island and in fact all of the roads have considerable holdings there, holdings are quite large.

Q. Is there trackage property outside of the districts you have mentioned?

A. Yes, sir.

Q. Where?

A. Farther east. Farther east on the ea*sid* side of the

379 river and farther west on the west side.

Q. How far east?

A. You can get trackage property on the Rock Island as far east as the fair grounds, that would be about 35th or 36th streets. You can go north on the Great Western o*n* on the Northwestern as far as the city limits.

Q. For what uses, what kind of factories are such properties adapted the outlying trackage properties?

A. That is used for factories who ship entirely—that have not any small parcels for delivery where it requires quick transfer and is used for the sale outside of the city of what you might call large hardware or goods which are shipped in carload lots.

Q. Is there any difference in the value of the use of outlying properties for trackage purposes and inside trackage property?

A. Yes, sir.

Q. What?

A. There is very great difference in the value of the property because of the fact that property which can be used for trackage or manufacturing in the outlying districts, the manufacturer has a large field to choose from while property which is available for factory or

warehouse usage in what is known as inside trackage the property is scarce, it is pretty well utilized and it is high priced.

Q. To what extent is inside trackage property on the market, to what extent can it be obtained, what sized tracks?

A. There are no tracks that I know of in the inside trackage property larger than half a block and that not in one ownership.

Q. Where is that located?

A. That is located between Sixth and Seventh streets south of Vine.

380 Q. What values obtain there?

A. That property is held about $400 a foot.

Q. Did you say a half a block?

A. Half a block.

Q. Where is that?

A. Well it is 132 feet square. Two adjoining pieces 132 feet square each.

Q. In the same block?

A. In the same block. They are owned by different ownerships though they are held at $40,000 apiece. Pardon me they are held at $50,000 apiece, would be $100,000.

Q. Aside from these two quarter blocks do you know of any others?

A. The Sheurman Brothers Woolen Mills Company has got a quarter block that I think that hold at $48,000 or $50,000.

Q. Where is that located?

A. Located just between Seventh and Eighth streets, about the same location.

Q. If you had an establishment, a problem say to obtain as much as two blocks lying contiguously in the west Des Moines trackage district, do you know of any such lands that could be obtained?

A. No, sir.

Q. Nothing larger than a quarter block in one ownership?

A. That is all.

Q. And half a block in two ownerships?

A. Yes, sir.

Q. How is it on the east side in the district you have mentioned?

A. I don't know anything on the east side, what you might call close in that could be bought that has trackage facilities even as large as a quarter block.

Q. Capitol Hill extends south to the railroads doesn't it,

381 south of the Capitol building?

A. Yes, sir.

Q. Beyond that is located a network of railways?

A. Yes, sir.

Q. That enter the city?

A. Yes, sir.

Q. Beyond that and still farther south what is the character of the ground?

A. It is low, almost what might be termed the river surface level, but little higher.

Q. Going west from the foot of Capitol hill by whom is the prop-

erty owned that lies along Seventh and Eighth streets and Sixth street?

A. You mean south of Court or all through?

Q. South of Court and north of the Raccoon?

A. It is owned very largely by the railroads.

Q. Is that on the market for sale?

A. No, sir.

Q. How far west does the railroad ownership extend?

A. Extends I think outside of their right of way. I think it extends to east Third street.

Q. Referring your attention to the map, Exhibit 5, can you find out in the railroad holding and I inquire particularly as to Block L, is that railroad property or ir it not?

A. I think that all of Block L is owned by the Rock Island, I am not sure about the entire ownership, but it is in railroad ownership all or except one or two lots.

Q. Suffice it to say do you know of any unappropriated land over in that trackage district in large quantities or larger than you have indicated, say a quarter of a block?

382 A. Not without going a considerable distance east. It would not be considered inside trackage property.

Q. How far east do you have in mind?

A. I think you would have to go along about east 20th street.

Q. I refer to the inside district?

A. No, I don't know any that would be termsed inside trackage property.

Q. What are the benefits and advantages as trackage prop-rty say such as you find around the Gas Company's property, that and other property there as compared with the outside trackage property in the uses to which it is adapted?

A. Well it is entirely a different proposition. Inside trackage property goes in as high priced because it is—there is very little of it to be had and i- is used for concerns that have got from the nature of their business to be close in, handle considerable transfer business and want to be close to the retail district where they can handle goods perhaps and get at the retail district quickly and for storage purposes. It becomes very valuable for that purpose. One of the largest storage warehouses in the city now comes pretty close to the retail center, the corner of Ninth and Mulberry simply because of the value of being close to the retail district.

Q. Has there been a growth in the storage and manufacturing business of Des Moines in the last number of years.

A. Yes, there has. Our manufacturing business now is over twenty five million a year. That is about seven or eight millions more than it was ten years ago any way.

Q. To what extent would you say the available trackage property has been appr-priated by manufacturers or storage concerns?

383 A. There are no large tracts larger than a quarter block to be had that I know of close in because property of that character has been pretty well utilized already.

Q. Do you know the property of the Des Moines Gas Company occupied by its plant?

A. Yes, sir.

Q. Will you refer to the map, Exhibit 5, and describe the property?

A. The property consists of all of Block C, Lots 3 and 4, in Block K; Lots 3 to 10, inclusive, in Block D; Lots 3 to 7 inclusive, in Block T, and Lots 9 and 10 in Block M, in Scott & Dean's Addition to the city of Des Moines.

Q. Is there any property on the river bank, have you noted that?

A. That is marked as block T here.

Q. You have given that?

A. Yes, sir.

Q. For what uses is that property adapted?

A. That property is principally adapted for railroad purposes, for storage purposes, warehouse and storage purposes and for manufacturing purposes.

Q. Did you make an examination of that property with a view of placing a value upon it?

A. I did.

Q. When did you make such examination?

A. About the first of last January or about that time.

Q. Do you know what its fair reasonable market value was about the first of January of this year. Answer that by yes or no?

A. Yes, sir.

Q. You may state what it was?

Objected to as incompetent and immaterial.

A. About $235,000 altogether, the whole property.

Q. What do you say as to whether it is more or less valuable now?

384 Same objection.

A. It is not worth any less. It would be problematical as to whether worth more. Property is increasing in the city some every year.

Q. By what methods did you reach that appraicement?

A. On the front foot valuation basis.

Q. My question to you was of the value of the ground exclusive of any buildings.

Q. Yes, sir.

Q. You understood it and answered it in that way didn't you?

A. Yes, sir.

Q. You reached your appraisement by f-ont foot valuation?

A. Yes, sir.

Q. The property as a whole or did you subdivide it?

A. I subdivided it.

Q. I will ask you to tell the Master how you got to the several values that go to make up the aggregate?

A. The highest valued part of this property is the portion that is adjacent to the Rock Island line which is a double line, in my opinion. I changed the plat. I took and made a new plat to get at the value changing the plat as now drawn so as to make the property

front on the railroads and on Vine street, I placed a valuation of $200 a front foot, extending south 140 feet.

Q. You are now referring to the land in Block C and in Block K?

A. Yes, in Block C and Block K.

Q. You refer to frontage on Vine street?

A. Yes, sir.

Q. How much was the next division you made?

385 A. The next division was the portion of the lots fronting on Market street located in Blocks B abd C and extending back from Market street 140 feet. On this I placed a valuation of $175.00 per front foot. My next valuation was on Lots 9 and 10 in Block B taking the frontage on Elm street at $150 a front foot and lots 9 and 10 in Block M fronting on Elm street at $125 a front foot and Lot 3 in Block B fronting on First street at $50 a foot and lots 3 to 7 inclusive in Block T at $25 per front foot.

Q. What was your purpose and reason for making the subdivisions that you have just given?

A. For the reason that the value of trackage property is the trackage on which it abuts.

Q. Dependent upon that you mean?

COURT: Have you got your figures for these?

A. That is the way I figured them.

COURT: Have you got your figures with you?

A. I have not my figures, no. I can figure it in a minute.

Mr. READ: Did your hojor desire a memorandum of the figures?

COURT: Yes, I would like to have a memorandum of the figures.

Mr. GUERNSEY: We can make up a memorandum for you that will show this.

Q. So if I rightly understand you you have platted the several parts as given by you and the aggregate makes up the total price that you have given?

A. Yes, I think the total valuation figures about $235,000 or about that figure.

Q. And that is your valuation is it?

A. Yes, sir.

Q. Suppose Mr. Porter that you were to regard the property as a whole as a sale proposition, is there any advantage or disad-

386 vantage in that.

A. In making my estimate the value I figured is on values if it were subdivided in not less than quarter blocks and taken as a whole I think that it would be worth just as much, perhaps a little bit more.

Q. Is there a demand in that locality and for such purposes for small tracts smaller than quarter blocks?

A. No, sir; quarter blocks is as about as small as one can figure valuation on trackage.

Q. Is such a tract in your judgment the most valuable size for realizing the best price?

A. The larger the tract I think the most valuable it would be. That is my opinion.

Q. Why is that so?

A. Because of the great scarcity of such tracts.

Q. If you wanted two blocks in one body or one block what is the fact in your opinion as to its bringing better prices?

A. It would command a higher price. Of course you would have fewer customers that would want two blocks that for a quarter block, but when you found such a customer he would pay more money for it.

Cross-examination by Hon. H. W. Byers:

Q. I suppose Mr. Porter you understood the purpose of this appraisement at the time you made it?

A. No, I did not. I never have had that explained to me yet.

387 Q. That is did you not know that the gas company was having a controversy with the city and that this appraisement was to be made to be used in that controversy?

A. I understood there was a suit of some kind, but I didn't know whether the suit was brought by the gas company or by the city.

Q. You knew anyhow the appraisement was to be used in the suit between the gas company and the city?

A. Yes, I understood that yes.

Q. You divided up this property for the purpose in the appraisement in the way that you thought would make it the most valuable and make the appraisement the highest?

A. No, I had my division for the purpose of getting at the cash value of the property.

Q. I know, but you have already told counsel it was more valuable where it was trackage property than if it were not?

A. Yes, sir.

Q. You went to work and divided it up so you made it all trackage property?

A. Yes, sir.

Q. You did that of course so your separate parts would all be the most valuable?

A. That is right.

A. Of course in that way you could make the very highest value on the property?

A. It would make its cash value. That is the way anybody buying would figure.

Q. That is what you was trying to do was get it as high as you possibly could?

A. Trying to get it what it was worth.

Q. You were trying to get it the highest possible value?

A. Its present cash value as near as I could get at it.

388 Q. To do that you divided it up in your own way to make it all abut trackage?

A. Yes, sir.

Q. Do you limit trackage property in Des Moines to property that abuts on some of the present railroads?

A. Well no there is property that railroads can be gotten to, but purchasers coming in to buy do not want to buy that kind of prop-
we-ty as a rule.

Q. There are hundreds of acres of trackage property surrounding Des Moines isn't there, inside the city limits?

A. Yes, sir.

Q. Thousands of acres for that matter?

A. Yes, sir.

Q. Are you a member of the Greater Des Moines Committee?

A. No, sir.

Q. Or the Boosters' Committee?

A. No, sir.

Q. Or Commercial Club?

A. Yes, sir.

Q. You say you have been in the real estate business buying and selling in Des Moines for about fifteen years?

A. Between 12 and 15 years.

Q. And I suppose you have sold a great many tracts in that time?

A. A great many.

Q. And bought a great many?

A. Well we have acted as agents more than purchasers.

Q. And you say your company is in the loan business?

A. Yes, sir.

Q. Making real estate loans?

A. Yes, sir.

389 Q. Directly making loans of its own money?

A. Sometimes and sometimes it acts as agent.

Q. Are its loans made upon city property?

A. Yes, sir.

Q. You have loaned in the last few years about $300,000?

A. We loan from $100 to $300,000 a year.

Q. $100,000 to $300,000 a year?

A. Yes, sir.

Q. On city property?

A. Yes, sir.

Q. Now in all twelve years will you give the Master a description of a single piece of property down about the gas works that you sold?

A. I ha*b*ve not sold. I have attended sales.

Q. I just want to know one you have sold yourself?

A. Not any right close there.

Q. Can you give the Master the description of a single tract anywhere within three blocks or four blocks of the gas company's property that you bought in the last twelve years?

A. No.

Q. Can you give the Master a description of a single lot, quarter block or block anywhere within five blocks of the gas company's property south of Court Avenue and east of the river that you have made any loans on?

A. No.

Q. Now can you give the Master the description of a single lot,

quarter block or block anywhere about the gas company's plant say between the river and east to 3d street and from Raccoon river south, north to Vine street that you know of that has been sold in the last 12 years irrespective of buildings now?

390 A. I can give you pieces that offers have been with reference to.

Q. That is not the question. (Question read.)

A. Yes the northeast corner of east Third and Vine street sold within that time.

Q. The northeast corner of Third and Vine street?

A. Yes, sir.

Q. That is business property?

A. No.

Q. What is on that property?

A. An old flour mill.

Q. And when was that sold?

A. About eight years ago.

Q. How much was it sold for?

A. I don't remember the consideration.

Q. How much of the ground?

A. 132 feet square.

Q. You were fixing your values over there, getting at the market value, it was necessary for you to know wasn't it.

A. I know what they have been offered for it.

Q. No, that is not the question. Now what did it sell for at that time?

A. I don't recall. There had been so many changes in eight years I can't keep track, I don't remember what that sold for eight years ago.

Q. What was it used for eight years ago when it was sold?

A. Well it had been used for a flour mill and abandoned for that purpose.

Q. It was an abandoned mill then and is yet isn't it?

A. Yes sir.

391 Q. Then it has not been used since, the last eight years?

A. It has been utilized for iron works and storage purposes.

Q. Cheap storage?

A. Yes sir.

Q. Sort of a junk pile of stuff over there?

A. Yes sir.

Q. That is one tract, quarter block sold eight years ago. Now can you give the Master one more?

A. You are referring to south of Court Avenue?

Q. Yes, south of Court Avenue and west of Third street and east of the river and north of the Raccoon?

A. The Dempster Manufacturing plant sold since that time.

Q. When was it sold?

A. I think about three or four years ago.

Q. Where is it located?

A. Located along Court Avenue between Second and Third.

Q. That is right on Court Avenue isn't it?
A. Yes, sir.
Q. I am speaking south of Court avenue.
A. It abuts on Court, clear south of Court.
Q. It is business property?
A. Yes, it is a wholesale business and manufacturing property.
Q. How much ground was sold?
A. I think 280 or 300 feet along Court Avenue.
Q. That sale included the entire property building and all?
A. The building didn't amount to much.
Q. I didn't ask you that, just let me have an answer and we will get along.
A. That included the building, yes.
392 Q. You say that was three or four years ago?
A. Yes, sir.
Q. And how much ground was there?
A. About 300 feet on Court Avenue.
Q. How deep was it?
A. Running back I think about 140 or 160 feet.
Q. Is the same property there now?
A. Yes, sir.
Q. Same building?
A. Yes, sir.
Q. Been any particular improvement in the property?
A. May have been some, I have not noticed any.
Q. What did it sell for three or four years ago?
A. I don't know.
Q. Didn't you make any inquiry at the time you made up this valuation?
A. I went to see them to see what I could get it for now.
Q. No, I don't mean that. Did you make any inquiries?
A. No. I don't care what it sold for four or five years ago, would not enter into my valuation at all.
Q. I am trying to find out if you did take account of it?
A. No.
Q. Now did you make any inquiry as to the price the property sold on Elm street?
A. That is the price it could be bought for now, yes I made some inquiry.
Q. What particular piece of property did you inquire about south of Elm street?
A. No, I didn't inquire about any—yes I did too, I saw some of the owners of individual houses there, some homes in there
393 where the owners live.
Q. Yes there is a home right on the corner right south of the lots in Block M I think it is, is there not?
A. Yes, sir.
Q. Is that the farthe*r*est south that the gas plant has property?
A. Block M yes.
Q. Right on the corner in the block south of that residence property, the northwest corner of the block south did you inquire what it could be bought for?

A. I don't remember whether I got a price on that piece or not. I made several inquiries in there among the owners where I could find them.

Q. If you did inquire about that one what was the price they stated to you?

A. I don't know what the price was.

Q. Do you know where the Gilcrest block is on this side of the river?

A. Yes, sir.

Q. Is that for sale?

A. No.

Q. How much of it is there?

A. I am not sure, I think there is—there may be a quarter block or little less, I am not positive about that. I know it is not for sale.

Q. It is a good deal more than a quarter block isn't it?

A. I don't know whether they own—I don't know whether they are on all their own land, or on some of the railroad land, if they occupy all the land they have there it would be more than a quarter block.

Q. What was this property worth ten years ago?

A. Which property?

394 Q. This gas company's property?

A. Well I would think probably one fourth of what it is worth now.

Q. About one fourth?

A. $50,000.

Q. What was it worth eight years ago?

A. Probably $75,000.

Q. You think it gained in those two years fifty per cent in the value, that would be eight years ago?

A. I think so.

Q. Has there been anything that you know about the property that has increased its value since then, I mean the property itself, the land itself and immediate surroundings?

A. There has been a good deal of the company's property that has been filled in in the last eight years.

Q. Anything else?

A. Not about the property itself. There have been improvements in the surrounding property.

Q. What surrounding property has been improved down in that territory take it south of Court and east of the river and west of Third?

A. The Advance Thresher people have built in there and Nichols & Shepard.

Q. Where is the Advance Thresher Co.?

A. They are north between Court Avenue and Vine street.

Q. When was that building put up there?

A. I don't know, but it has been built within the last ten years, last eight years.

Q. You think it is within the last eight years?

A. Yes, I think so.

395 Q. What was the other building. Nichols & Shepard?

A. I think it is Nichols & Shepard Company, I may be mistaken about the name. There is a new building put in there within the last eight or nine years.

Q. Been anything else done down there?

A. Been a tanning company built on Block S.

Q. You don't think that added anything to the value of the property down there?

A. I think so, it is a manufacturing concern.

Q. You think this gas plant adds to the value of property down there?

A. I think in its way it does. I think there are other industries which would go on the ground which would increase the value more.

Q. A good deal more I suppose?

A. I think so.

Q. Do you know of anything about the gas plant as you saw it down there and as you know it that requires it to have any particular inside location?

Objected to as not cross examination and this witness has not shown himself competent to tesitfy.

A. I would not have the knowledge to give an intelligent answer on that I don't think. There are things I would say that I would think would make it valuable for a gas plant.

Q. They have their office all up town, general office for business don't they?

A. I think it is.

Q. Transactions with customers and all that sort of business is done up town?

A. I think so.

396 Q. And their gas is all piped to their consumers?

A. Yes, sir.

Q. How far north would you say the available factory and trackage property extends on the east side of the river?

A. It depends entirely for what use it is to be put.

Q. Well for any use that would need trackage, that you have got to have railroad facilities?

A. You can get trackage as far north as the city limits that can be utilized for certain lines of business.

Q. How much territory out on the east side of the city in a general way now, about how wide a strip of country is there north and south from the Q line to the city limits that could all be used for trackage purposes by extending spurs and sidetracks?

A. Well the land in the section you speak of there between the Q tracks and the Raccoon would be limited because of the lowness of the land. If that were all filled up it could be made a very large district.

Q. Where is any land up there as low as this gas plant property?

A. I think a great deal very much lower.

Q. Where is it?

A. Extending to the south as far as the Des Moines river and extending east as far as the fair grounds and south of the tracks.

Q. South of the Q tracks?

A. South of—all the land between east 8th and east 20th *as* very low where all the tracks run, between the tracks and south of them.

Q. I know, but I say north beginning at the south side of the Q track going north?

A. It would be low—it is all good land on 20th street north on the Great Western, but going out on the Northwestern
397 you would have good land, on the other roads you would have low land?

Q. On the Northwestern good all the way out?

A. Yes, sir.

Q. The Great Western good all the way north and east from 20th street?

A. I would say so, fairly good, some low places, mostly good land.

Q. Whatever low places there are are low because of depressions.

A. Natural depressions, yes.

Q. The general level there is higher than where the gas plant is?

A. Yes, sir.

Q. Do you know the tract of land on the east side between the Burlington on east Ninth street and east of Fourth street that was put on the market just a short time ago?

A. On the Burlington track?

Q. Yes? A large tract?

A. No, I never heard of it.

Q. Never heard of it?

A. No, sir.

Q. It didn't come to your knowledge at all while you were valuing this property?

A. No, sir.

Witness excused.

R. R. McCutchen being called on the part of the com-
398 plainant and sworn and examined in chief by W. L. Read, Esq., testified as follows:

Q. Where do you live?

A. Des Moines.

Q. How long have you lived in Des Moines?

A. Twenty seven years.

Q. How long have you been in business?

A. I have been working for about twenty three years.

Q. What have you followed during your business life, give the several different occupations and length of time of each.

A. I worked one year in Fred Field's shoe store and after that I went into the employ of the Central Loan & Trust Company.

Q. In what capacity there?

A. As stenographer.

Q. How long did you stay there?

A. I stayed with them until about a year before they went into the hands of a receiver.

Q. Following stenography all the time?

A. No, sir; worked two months as stenographer, then I became

their bookkeeper and assistant cashier and I was cashier up to the time I left that company.

Q. What was your next work?

A. Secretary of the Vermont Syndicate.

Q. What was that?

A. That was a corporation that platted Kingman Place an addition in the northwestern part of the city.

Q. Engaged in selling out the addition was it?

A. Yes, sir.

Q. What did you have to do with the concern?

399 A. I sold the lots and made their collections, had general charge of its business.

Q. What next?

A. I then went into the employ of Mr. Hatton. Well at the same time I was secretary of the Vermont Secretary. I was in the employ of Mr. Hatton.

Q. What business was he engaged in?

A. In the real estate business, real estate and real estate loans.

Q. What did you do there?

A. I sold real estate and assisted in making loans.

Q. Have anything to do with the appraisement of property?

A. Yes, sir.

Q. What?

A. I quite frequently appraised property for loans.

Q. How extensive a business did Mr. Hatton do?

A. I don't know the volume of it, but it was a very considerable business. He was I think the leading real estate — in Des Moines up to the time of his death or shortly before it.

Q. Mr. Thomas Hatton?

A. Yes, sir.

Q. An old resident here wasn't he?

A. Yes, been in the real estate business for years.

Q. You then continued with Mr. Hattan and then what?

A. We organized a corporation called the Hatton & McCutchen agency the stock of which we owned jointly and that continued up to the time of his death.

Q. That agency carried out the same line of business?

A. Yes, sir.

Q. When did Mr. Hatton die?

A. I can't tell you exactly. I — out seven or eight

400 years ago.

Q. Since his death what have you done?

A. I bought the interest of his estate in the business the first year after his death and since then I have continued it myself alone.

Q. What is the business that you manage and conduct?

A. Real estate and real estate laons.

Q. Generally what is the volume of real estate loans?

A. I never have figured it up.

Q. Well it is considerable?

A. Yes, sir.

Q. Large business?

A. Yes, sir.

Q. Is the real estate upon which loans are made appraised?

A. Yes, sir.

Q. Under your supervision?

A. I appraise it myself.

Q. To what extent have you bought and sold real estate for yourself or others.

A. I have sold it to a very large extent for others and to quite an extent for myself.

Q. To what extent have you followed the course of prices and values of real estate in Des Moines, how much have you made it a study in a general way?

A. I have devoted a great deal of time to it. I had to.

Q. How and why?

A. Well in order to be able to make safe loans I had to know to a very considerable extent the value of real estate and the various kinds of property in this city. We take a sheet called the Dail- Abstract, I think that is the name of it, in which all records
401 deeds and mortgages are shown each day. That is delivered at our office every morning. I look that over every day and make a careful study of it. About six or seven years ago I made a map of the down town district or had one made in an architect's office on a large scale, a scale about four times the size of this plat here.

Q. You are referring to Exhibit 5?

A. Yes, sir.

Q. And I went to the records and got the name of the present owners of each piece of property and put it on the map and the date on which the owner bought it and what the deed stated he paid for it and I also put on the map the amount of existing mortgages and who held them and since that time I have a young man in my office whose business it is to look over that sheet every morning and enter up on that map any transfers of that property and the name of the party who gets it and the date and the consideration.

Q. When that is done do you observe or not the different transfers?

A. Whenever there is a transfer of any property in that district he checks it with a lead pencil so that I will be sure not to overlook seeing it and puts the daily abstract on my desk. He does that the first thing every morning.

Q. Then what do you do?

A. Then I look over the sheet and I am sure to see it. Once in awhile I don't look, I neglect to look at these sheets.

Q. What about following the prices and sales made in the city, do you do that otherwise than by having the record put on your map.

A. O yes, I see this Daily Abstract every day.

402 Q. To what extent have you been familiar with real estate transactions, I mean aside from the information you obtain form this daily sheet?

A. Well I have made a good many sales myself, then I always

noted any articles in the newspapers and I have talked with other real estate men that have made sales.

Q. Have you acted as a member of appraising boards?

A. Yes, I was and I am not sure, but what I am yet member of the appraisal board of the Des Moines Real Estate exchange.

Q. To what extent have you made a comparative study of values of real estate in Des Moines with other cities?

A. I have several text books I guess you would call them giving values of real estate in other cities of various kinds. I have read them over very carefully several times and then I have corresponded with other real estate men in cities of the size of Des Moines in regard to values of various kinds of property in their cities and whenever I have been in any other city the size of Des Moines or larger I have made it a point generally to call at the office of one or more of the leading real estate men in that town and have a little talk with them as to values of property in their city and their manner of doing business.

Q. Then you have attempted at least to make a study of the real estate situation with respect to values in Des Moines and also in other cities as well?

A. Yes, sir.

Q. What has been the general trend or course of prices in Des Moines in real estate.

A. Within the last few years it has been upward very considerably.

Q. How many years?

403 A. Oh there has been a steady growth in value ever since I have been in the business, but it has been most rapid I think within the last four or five years.

Q. Can you give some illustrations of the advance in real estate, some comparison?

A. I can give some illustrations of my own in connection with property I *won* myself.

Q. Very well.

A. I bought a piece of property at the corner of 15th and Grand about two years ago at $100 a foot and sold it within the last year at just double the price. Take the corner where the Fleming building is. I think about twenty years ago that property was bought by the Rothwells for something like $80,000 and it was sold to the Fleming Brothers for I think $175,000 those figures won't be off more than $5,000.

Q. Did that include the building?

A. At the time they bought it?

Q. Yes?

A. I don't know whether the other building was on there at the time they bought it or not, but it included the old building at the time that they sold it, at the time Fleming Brothers bought it.

Q. It was a two or three story building?

A. I think it was a three story building. It was not very much of a building. Then the 44 feet right west of that on the alley was purchased by Mr. J. D. Whisenand for $40,000 I think about—I

won't say definitely, but I think it was about ten years ago, it is not very far from that and he sold it for $125,000 about two years — I think. It was with the same improvements on it as at the
404 time he bought it.

Q. Do you know about the Harris-Emery property at the corner of Seventh and Walnut?

A. The Harris-Emery property, the bulk of it is owned by the Rothwells who live in Brookline, Massachusetts.

Q. What is the general range of prices on Walnut street in the vicinity of Seventh street at this time?

A. You mean the buildings or ground?

Q. The ground exclusive of the buildings.

A. You mean at Seventh and Walnut?

Q. Yes.

A. Approximately about $3,000 I think.

Q. That is per front foot?

A. Yes. I think there is not — of it could be bought for that.

Q. Why do you say that then?

A. I think it could be sold readily for that figure.

Q. Could be sold, but don't think it could be bought for that?

A. No, sir; I don't think it could.

Q. These prices shade off to what extent as you go east?

A. I should say about $700 when you get down close to the river front, get in around Second street.

Q. Going on to the east side, it appears here and I take it to be a fact east Des Moines property has been less comparatively than west Des Moines property, that is true is it not?

A. Yes, sir.

Q. Has there been any tendency of increase of values in east Des Moines?

A. Yes, sir.

Q. What is the general range of that?

A. Well it varies in different portions of east Des Moines.
405 I would say it has been somewhere from I presume as high as 200 per cent in places.

Q. Have there been any improvements that have tended to advance the price of east Des Moines property?

A. Yes, sir.

Q. What are they?

A. The new city hall, the coliseum, the new post office, the Locust street bridge, the new Walnut street bridge that is now being completed, the change of grade on east Locust street and prospective change of grad- on east Walnut street and the eradication of the tenderloin district over there.

Q. Where is located, in what part of the city, the inside trackage property, manufacturing and storage property?

A. It begins with the north side of the Des Moines Union Railway which is just a little bit south of Cherry street. You may say the south side of Cherry street, although th-re are switches that run north of Cherry street which make trackage property out of property which is north of there, but generally speaking it is south of Cherry

street and south of Court Avenue and east of west Seventeenth street, east of what some people call the 20th street viaduct.

Q. How far east does that extend?

A. Well it follows the lines of the railroad almost I would say about out to the fair grounds.

Q. I refer to inside trackage property.

A. Oh inside trackage property, well it goes south to the Coon river and extends east you may say it stops almost over there about east Sixth, Seventh or Eighth street, along in there.

Q. A good deal of ground over there devoted to railroad yards purposes?

406 A. A great deal of it devoted to yard purposes and a great deal of it owned by the railroads that is not used for any purpose.

Q. Is it on the market for sale?

A. No, sir.

Q. In the west Des Moines district, some portion of that is owned by Mr. Hubbell or the Hubbell estate is it not?

A. A very large portion of it.

Q. Is that on the market for sale?

A. No, sir.

Q. How is it available?

A. Ground lease.

Q. Not on the market for sale at all then?

A. Mr. Hubbell says that he will sell property on the Des Moines Union tracks if it is absolutely necessary in order to get a concern located on his tracks. He is interested in the Des Moines Union, but in doing so he always want- a large price for it so that it practically speaking *it* is not on the market.

Q. A prohibited price is your idea?

A. Yes, sir.

Q. What is the range of prices you have in mind now for that district?

A. For the property owned by Mr. Hubbell?

Q. Yes?

A. Well I don't know of but one case where he quoted a price on any of it, but I think he quoted a price then of $200 a foot for ground on lower Fifth street that was about fifteen feet below grade and subject to overflow.

Q. Does it make any difference whether the property is—in its sale value is close in to the business center or not?

A. Trackage property?

407 Q. Yes.

A. Yes, sir.

Q. What difference, in what way?

A. Well here are certain manufacturers and certain jobbing houses—you are speaking particularly of manufacturing property?

Q. Yes, inside manufacturing property, I speak of trackage property assuming that that was the best for that?

A. Well for jobbing purposes it being inside would make very much difference. For manufacturing purposes would not make

so much difference but makes considerable difference with some manufacturers for the reason they want it convenience to the hotels and retail district and the depots, freight and passenger both.

Q. Take it in the west Des Moines district at about Mulberry and Vine about Seventh and Eighth along in there what is the range of values say, there for trackage property?

A. I would say approximately about $500 a foot.

Q. Take it in the east Des Moines district what?

A. It is much lower. I would say that it would range from $200 down.

Q. Now as compared with the outside trackage property going out a mile or so at about the fair ground, or say on the Northwestern or Great Western, what is the difference in value there?

A. Very considerable, yes sir.

Q. Very much cheaper?

A. Yes sir.

Q. To what extent has the inside trackage property been all appropriated?

A. To a great large extent, that is if you call Mr. Hubbell's
408 ownership appropriation.

Q. Well exclude that.

A. You mean in active use?

Q. Yes. Exclude Mr. Hubbell's property. I mean so appropriated it is not on the market for sale because either withdrawn from sale as Mr. Hubell's is or because already devoted to the use that has withdrawn it from the market.

A. There is an unusually large percentage of it that is off the market for a city of this size which has already been taken.

Q. Suppose there were a call for say two blocks contiguously located would you know where to find that in the west Des Moines district?

A. No, sir.

Q. Would you know where to find it in the inside east Des Moines district?

A. No, sir.

Q. Why is that so?

A. Because the plants that are already located here what you might say put out of the running a large percentage of it and the divided ownership of the balance would make it very difficult to get it.

Q. How does the divided ownership affect property?

A. Well the divided ownership generally results in your paying a very large price for some portion of the piece you want to get. You nearly always find someone when trying to buy a large tract of ground of which the ownership is divided up amongst different persons, you find nearly always some person that does not want to sell, generally find at least one third of the owners that don't want to sell, they have no reason to sell and they don't know
409 what they would do with the money if they sold, they are satisfied and you go after them to buy and they say they don't

want to sell and you keep after them and it generally ends in your paying a very exorbitant price for that piece of property.

Q. Are there any factories located in the east Des Moines district, I mean south of the north line of Court Avenue and north of Elm street, west of Sixth street, aside from the gas company plant?

A. Yes, sir.

Q. What ones?

A. Well there is a new concern over there, Locker-Yeager Manufacturing Company, planing mill, make a business of handling inside finish for houses, sash, doors, and things of that kind. Then there is the Des Moines Manufacturing and Supply Company which manufacture furnaces and boilers and the Bair Tanning Company, they make a business of tanning hides and there is the Advance Threshing Machine Company and the Mason Motor Car Company has a building over there that they formerly used there in their plant but they only—there main plant I believe now is Waterloo, but they still keep and use the building.

Q. Linseed Oil Works over there?

A. American Linseed Oil works, yes and there are a number of others, quite a number of others.

Q. Do you know where is located the property of the Des Moines Gas Company that is used in connection with its plant?

A. Yes, sir.

Q. You may look at the map marked Exhibit 5 and tell the Master where the property is located?

A. It is south of Vine street, east of the Des Moines river,
410 extends along the south side of Vine street from the river to half block east of east Second street. It is what is marked in red.

Q. Better give it by the lots and blocks.

A. Legal description?

Q. Yes.

A. Lots 3 to 7, inclusive, in block 7. The entire Block C. Lots 3 and 4 in Block K. Lots 3 to 10 inclusive in Block B lots 9 and 10 in Block N all in Acott & Dean's Addition.

Q. To what various uses is that property adapted aside from its use for the gas company, what other and various usage?

A. Well there are three principal uses that it might be utilized for, manufacturing, jobbing and railroad purposes.

Q. Manufacturing, jobbing and railway purposes?

A. Yes, sir.

Q. That includes storage does it? Does that include storage use?

A. Well I didn't have that in mind particularly but it would be well adapted for that.

Q. What kind of manufacturing purposes would you say?

A. It would be particularly adapted to a factory that wished to be prominently located and needed a large sized piece of ground that was very accessible to the hotels, depots and retail district of the city.

Q. That property is within what distance of the court house.

A. Half a mile.

Q. Within half a mile radius is embraced the business center of west Des Moines?

A. Yes, sir.

Q. Hotels, postoffices and public places.

A. The principal ones, yes.

411 Q. It is also within a short distance of the business center of east Des Moines is it not?

A. Yes, sir.

COURT: The center of east Des Moines is that street here?

A. The business center of east Des Moines is a block east of 5th and Walnut—there is 5th and there is Walnut. The largest office building they have on the east side, business building of any kind is right at the corner of 5th and Locust, that is the Capital City Bank building. You might see the retail business district in east Des Moines follows east Locust and east Walnut street from the river east to about, well it stops on these two streets practically at 6th street and the very choicest east Des Moines business property is on east 5th street from Walnut north to Locust and then east to Locust to Sixth and then north on Sixth.

Q. Have you made an examination of the property of the Gas company as described by you with a view to placing values upon it?

A. Yes, sir.

Q. Making an appraisal of it. When did you do that, about when?

A. It was in March, March 1911.

Q. Do you know what was the fair reasonable market value of that property say in January of this year, the first of January, answer that yes or no?

A. Yes, sir.

Q. What in your judgment and opinion was the fair reasonable market value of the property taken as a whole and exclusive of any buildings upon the property?

A. $225,000 in round figures.

Q. How do you reach that valuation, I mean by dividing

412 it up or taking it as a whole?

A. I went over and looked the whole thing over and then I took it a block at a time. I put a valuation I think of $200 a foot on Block c and $125 per foot on Block T and $150 per foot on blocks K and B and $50 per foot on Block M.

COURT: I don't understand the frontage, this is one front or two fronts?

A. Block T there is just one frontage. In Block k just one frontage.

Q. That is Vine street?

A. No, that is east Second street. Block M there is one frontage and blocks B and C there are two frontages.

COURT: What is the entire frontage B?

A. 192 feet frontage on east First street and 280 feet on Second street in Block B.

COURT: That is $150 a foot?

A. Yes, sir.

COURT: How much frontage in Block C?

A. 560 — total frontage.
Mr. READ: That means both frontages?
A. Yes, sir.
COURT: Block T what is that frontage?
A. 200 feet.
COURT: And K.
A. 140 feet.
COURT: Now M?
A. That is 132 feet.

Cross-examination by Hon. H. W. BYERS:

Q. Then the value that you fix on lots 9 and 10 in Block
413 M would be about $6,500?
A. $6,500.
Q. If I remember Mr. Porter's testimony a moment ago, the ground in Block T he put that at $25 a front foot and you put it $125.
A. Yes, sir.
Q. So there is $100 of difference between you on that?
A. Yes, sir.
Q. If I remember Mr. Bolton's testimony and Mr. Frank Kauffman's did you know that they had appraised it too?
A. I knew Mr. Kauffman had. I didn't know whoe else.
Q. If I remember the testimony of Mr. Bolton correctly he put a value of $100 or more a foot on this lot 9 and 10 in Block M. There would be $50 a foot difference between him and your figures on that?
A. Yes, sir.
Q. Now Mr. McCutchen, the five lots there in Block T are river ends, what are called river ends in lots?
A. They are no full depth.
Q. They abut the river?
A. Yes, they back up to the river.
Q. While there is a continuous depth so far as the plat is concerned, yet as a matter of fact the lot extends out to the river, it may be longer than the description given in the record and may be shorter.
A. I don't know about that General Dyers, I never did know.
Q. And the lots face east First street?
A. Yes, sir.
Q. So that there would be just one of the lots and that would be the one on the south end of the block that abutted on Railroad street?
414 A. That does not abut on Railroadx the one on the north does.
Q. That is the only one that does?
A. Yes, sir.
Q. Now that ground there is located in all respects the same as the other, except that it is on the river bank, that is I mean it is on the same general level along the east side of the Des Moines river and south of Vine street and north of the Rock Island?

A. Well it is with the exception of the level, the level of it is higher than the block on the other property.

Q. That is east, is that higher there than the e-st of the property?

A. Yes, sir.

Q. So at that point the slope is from the river east?

A. I don't know about the slope, it has been filled up. Block T and Block C and I guess a good part of Block B has been filled up very considerably by the gas company.

Q. The general level of the land is lower back from the river that it is on the river bank for a little ways, two or three blocks?

A. The general level of the ground all around the gas company plant I think is lower.

COURT: You mean the natural level?

A. No, I mean the present level of the surface. The gas company has filled this ground up with cinders and stuff very considerably.

Q. Right now, is we were to have an unusual rainfall, something like we had in 1907 or 1903 the gas plant would be surrounded by water wouldn't it?

415 A. I don't remember the year that we had that extraordinarily high water, but I was over there the day that it was up and it was almost into the gas company's plant then and they had men out working around, but it did not quite come over it. The only way I think you could get there was across the railroad bridge that day.

Q. If we were to have an unusual fall of rain now, not a flood, but an unusual rainfall there are a large number of depressions and places that are still unfilled there that would fill up with water all around the gas plant wouldn't there, a big hole right east of it?

A. Yes, there is a big one right east of it.

Q. And right south of the plant too it is very low?

A. Well I don't think that would be affected by anything other than a flood south of it.

Q. A flood would affect that?

A. Yes, unless that new levy of the city's will hold and protect it, I don't know.

Q. You have been unusually active in real estate loans, put in practically all your time at that?

A. Yes, sir.

Q. You have been very active in pushing the real estate business in Des Moines in a general way in addition to your private interests and your own personal business.

A. No, I have not put in very much time in that way, I have put in most on my own business.

Q. You are a member of the committee called the Greater Des Moines Committee?

A. No, sir; I am not. I was but I am not now.

COURT: You quit being a Booster?

416 A. Not that but the bulk of the members of that committee are men of more means than I am and they are better warranted in attending on the committee. I was proud of being on it

but I could not put the amount of time on it I should as a member and give my business the attention I should.

Q. When did you drop out?

A. Almost a year ago I think.

Q. You make quite a good many loans on city property?

A. Yes, sir.

Q. About what would they amount to a year?

A. I have never figured it up. I have not cared anything about the amount I have loaned, it was how much I made out of it and the kind of loans.

Q. Did your business extend into east Des Moines?

A. Yes, loaned money all over the city.

Q. Anywhere in the city where the property would stand a loan you would place it?

A. Yes, sir.

Q. Have you been ten years at that business?

A. I have been in the loan business longer than that. I have been appraising property that long or longer.

Q. How long is it as to the time you have been in the real estate business?

A. Well it is practically—I gradually worked out of it—the Central Loan & Trust Company had got into the real estate business, the Central Loan & Trust Company got a good deal of real estate under foreclosure and part of the duties I had I took charge of their real estate—after I quit work for them as cashier I took charge of their real estate and their rentals and then I began to sell
417 property. I sold that stuff that they had gotten under foreclosure and from that I found I could sell real estate so I just drifted into it.

Q. About when was that?

A. I don't know, Mr. Guernsey could tell us about when that happened. Wasn't it in 1893, something like that?

Mr. GUERNSEY: I think it was after 1893. I know it was after 1893.

Q. We are safe in saying ten years ago?

A. Yes, sir.

Q. That would only take us back to 1901?

A. Yes, anyway that long.

Q. In that time do you remember of having sold any parcel of ground anywhere say within the territory north of the Raccoon river and south of Vine street east of the Des Moines river and west of Fourth street in east Des Moines?

A. I don't recall any.

Q. Do you remember of purchasing any there in that time?

A. No, sir; I did not.

Q. Did you ever make any loans in that territory?

A. Yes, made some loans on the residence property in there south of this property you refer to.

Q. Adjoining in Block L?

A. I don't remember any particular block. I never made very many loans in there, didn't regard it very favorably.

Q. Small loans when you made any at all?

A. Yes, sir.

Q. You thought it was not very desirable there for loans or in the way of security?

A. Not the part that is away from railroad tracks.

Q. You told Mr. Read you had a map that you made of
418 the city some years ago, a large one and you kept sort of a daily record on that map of sales and so on. Did that include this territory?

A. No, sir; it did not.

Q. Why didn't it?

A. Because it is not retail business property and is not likely to become so.

Q. You then did not cover in this tract property in that record?

A. I did not go on the east side of the river at all.

Q. Confined it almost entirely to west side of the river?

A. Yes, property as the business district of the west side.

Q. Block C is the block farthest north of the Gas plant's property?

A. Yes, sir.

Q. That is bounded on the north by Vine street?

A. Yes, sir.

Q. On the south by Market street?

A. Yes, sir.

Q. That property you say you estimated the value of it at how much a front foot?

A. $200 a foot. I don't think I got it exactly at $200 a foot but it was practically $200 a foot.

Q. That was exclusive of any improvements on it at all?

A. Just the ground.

Q. As it laid out there bare?

A. Yes, sir.

Q. What is there about the country over there that makes that property any more — than the ground in Block K or ground in Block B?

A. Well there are several features in connection with Block C — make it more valuable in my opinion than Block K and Block M.

Q. What are some of them?

419 A. Take Blocks C and T together—I suppose I ought to answer the way you asked me and tell you why I put a higher value on Block T?

Q. I will turn you loose and let you say what you want to about it.

A. I consider this Block C and Block T together have considerable value from an advertising standpoint.

Q. How much of the valuation did you include in as advertising?

A. I didn't fix that. I took it as a whole.

Q. But you gave it a larger valuation because you thought it was worth more for advertising purposes?

A. I gave a very considerable portion of that advertising value to Block T.

Q. That is on account of the river front?

A. Yes, sir; because if there was a separate ownership between Block C and Block T the party owning Block T could limit practically the advertising value of Block C by shutting off the view.

Q. You mean by that people from the west side of the river could not see the property on Block C?

A. I mean that any person coming into the city or crossing the Des Moines river on the railroad bridge on any trains coming from the east or going out of the city from the east looking out of the window of the train, which they would be likely to do, going over the bridge could not hardly help seeing any building that was located there and also that strangers in the city going back and forth across the bridges, the traffic bridges Locust, Walnut, Court Avenue and Grand, would be very likely to see a building located there and that would certainly have some value for some lines of business, some manufacturing lines.

420 Q. So then the real values of block T is simply from the fact by owning it they can protect the advertising front of the property located on C?

A. A very considerable portion of it.

Q. The railroads that crosses on the north side of the property is the Rock Island isn't it?

A. Yes, sir.

Q. What road is that on the south side of it, is that the Q?

A. That is commonly called the K. D.?

Q. That is the Rock Island I suppose?

A. It is practically the Rock Island I think.

Q. What is located on the two lots that the gas company don't own there in T?

A. There is a brick building there, I don't know exactly what it is occupied for, I think some kind of an iron workers establishment, machine shop.

Q. Being operated now is it?

A. I don't know.

Q. You don't know about that?

A. No, I don't.

Q. What values did you say you put on 3 and 4 in Block K?

A. $150 a foot.

Q. And what in Block B?

A. $150.

Q. Block B and Block K you put exactly the same value on?

A. Yes, sir.

Q. Why did you when you got down to Block M make that $50 a front foot?

A. Because it is only a quarter block in size and it is considerably below grade, it is quite a little bit further away from the

421 center of business in the city.

Q. If it should turn out it was not below grade—when you say grade do you mean the natural river bottom?

A. I said that, I meant practically it was liable to be overflowed.

Q. It is below the railroad grade and below the filled grade?

A. I don't know about the street grade, but I think you would find it below that, might not be.

Q. The gas company has a *could* of tanks of some kind on that ground?

A. Yes, sir.

Q. On lots 3 and 4 in Block K did you take into consideration in fixing the value anything about the alley there?

A. Yes, I figured that in.

Q. On two sides of the lot?

A. Yes, sir.

Q. You figured that in as part of the gas company's property?

A. Yes, sir.

Q. On the theory that they owned it?

A. Yes, sir.

Redirect examination by W. L. READ, Esq.:

Q. What did you say about the alley?

A. In Block K I figured the value of it in there.

Q. Value of what in?

A. At so much per front foot.

Q. For what?

A. Figured it as belonging to the gas company.

Q. You included it in the frontage?

A. Yes, sir.

422 Q. If it didn't belong it would simply diminish your frontage?

A. Yes, it would make a slight difference in the value.

Q. Affect the value to that extent?

A. Yes, I think make a slight difference in the value. Really would not make a very material difference. Make some difference though.

Recross-examination by Hon. H. W. BYERS:

Q. Do you remember about the sale of the ground where the Nichols & Shepard institution is?

A. I don't remember the exact amount of that sale. I remember that it was made.

Q. You had something to do with it?

A. No, sir; I did not. I was at the time trying to sell them another piece of property.

Q. They bought that because they got it cheaper?

A. I don't know why they bought it.

Q. You remember what they bought it at?

A. I don't exactly no.

Q. How long ago was that?

A. Well I would say it was within a year. I am not very good in remembering dates.

Q. We are safe in saying it was within eighteen months any way?

A. Yes, sir.

Q. These improvements th-t you say have increased the value of this property are all public in their nature are they not?

A. Yes, practically they are.

Q. There have been no special improvements around this property that you know of in the last seven or eight years about the
423 property itself?

A. Yes, the street has been raised to grade.

Q. I mean aside from filling in with cinders there has been nothing else done that you know of?

A. Well of course there has been a few—the amount of business that is being done in that part of the city has been increasing steadily.

Q. I am talking about improvements on the property, nothing in the way of street paving or new buildings like public buildings of any kind or anything of that kind in this immediate vicinity?

A. Right close to it?

Q. Yes.

A. No, not that I know of.

Redirect examination by W. L. READ, Esq.:

Q. I didn't quite understand your explanation about the advertising feature of the lot in Block T. What do you mean by advertising?

A. Well you take the Kratzer Carriage Company for instance, they are located right across the river on the west side of the river. Every implement dealer you might say that comes to the state fair is going to notice that Kratzer Carriage Company plant in coming into the city and crossing the river. That calls their attention to it and results in their going down there to see it and looking over their plant and get some business, it is advertising.

COURT: You don't mean to use it as bill boards?

A. Oh no.

424 COURT: It means that they can see the factory itself?

A. Yes, that is what I mean.

Q. I understood you to say you have in your valuation you had placed most of that value on the property in Block T?

A. I did largely because if that was owned by a different party and they put up another building there, for instance if there was a soap factory or some building that could get along with that sized piece of ground would come in there that would get practically all that advertising value?

Q. For that reason you put it there?

A. Yes, sir.

Q. It enhances the value of the property as a whole?

A. It does as a whole.

Q. Using Block- C and D and all the other property connected with Block T in one plant would you get all of the value of it apportioned to all of the plant?

A. Yes, sir.

Q. Because of the assumption of possible separate ownership you have in your valuation limited it to T?

A. Yes, sir.

Q. It belongs to some place in the property does it?

A. Yes, sir. That advertising value is worth more to the property as a whole than it is to Block T alone.

Q. Considering the size of that tract as a whole, the property in Block C, B, T, K and M, is it worth more or less because of that fact, I mean is the fact of a large tract an element of value?

A. It would be a very considerable element of value to anybody that wanted a large tract.

Q. But you have valued it in the smaller tracts?

A. I have taken it just in a general way. When I say that
425 I mean this, if you went out to buy a piece of ground like that, as big a section of ground like that located like that is in this town you could not get it, there is not another piece to be had like it. If on the other hand you had that piece of property vacant to sell you might have difficulty finding some one customer that wanted the whole thing. The supply and demand both is very limited but the supply is more limited than the demand.

Recross-examination by Hon. H. W. Byers:

Q. All you mean by that is that there is no other such piece of property that you know of in that vicinity now on the market but you can go out on the Northwestern road in east Des Moines and buy just as many blocks of ground abutting on the Northwestern as it goes out as you have money to pay for?

A. Yes, sir.

Q. And buy them for less than $25,000?

A. Yes, but they are not like this.

Q. They are better aren't they?

A. No, not nearly so good.

Q. Why?

A. Because there is only one piece of this kind in Des Moines you might say.

Q. Why is it better, higher, dryer and h-althier?

A. This is accessible—they are but—they are too long a distance from the hotels and they haven't got the advertising value that this has and they haven't got the trackage facilities that this *have* and they haven't got the convenience to street cars and freight
426 depots and the passenger depots and the retail district and the other manufacturing and jobbing concerns in Des Moines.

Q. What has manufacturing got to do with the retail district?

A. Got a good deal in some instances. The Prouty-Bowler Soap Company, their location is very convenient to the wholesale grocers, also to the buying district through retail grocers. It is convenient to the hotels and there are some factories where that is a very considerable element and others it don't cut so much figure.

Q. How much farther is it to the hotels from this property in northeast Des Moines we are talking about on the Northwestern railroad?

A. Well it is so much farther that if a stranger comes into Des Moines and wants to know where this property is it is so the hotel clerk can direct him. If you go out on the Northwestern tracks or

Great Western tracks or some other tracks, he is going to have more difficulty, got to find the place for himself and it takes more time.

Redirect examination by W. L. READ, Esq.:

Q. That is just one of the features you are calling attention to that is not the chief one, you mentioned the fact the hotel clerk could not tell him where to go?

A. Oh no. There are a number of features that enter into that.

Q. You mentioned them a moment ago, the main ones?

A. Yes, sir.

Q. Back of all that, how do these features express themselves in prices and values?

427 A. Well it is supply and demand of anything to a considerable extent that regulates values. The supply of the kind of trackage General Byers speaks of is practically unlimited. The supply of this kind of trackage is very limited.

Q. Therefore the kind he speaks about is cheap, but this is not so cheap?

A. Certainly.

Witness excused.

W. F. BRODNAX being called on the part of the complainants and sworn and examined in chief by Hon. George H. Carr, testified as follows:

428

Q. You may state your name, place of residence and occupation?

A. W. F. Brodnax, gas engineer in the employ of the J. G. White Company Incorporated of New York, contractors.

Q. What is your age?

A. 43 years old sir.

Q. What if any preliminary education did you have to fit you for the performance of the duties of a gas engineer?

A. I took a special course in the University of North Carolina and latterly graduated in the Knight School of Technology at Richmond, Virginia.

Q. In about what year?

A. My course was taken in 1887 in the University and 1889 and I think probably 1891 or 92 would probably cover the course at the Knight School of Technology in Richmond.

Q. After graduation what work did you enter upon and in whose employ?

A. I was in the employ of the Southern Railroad from practically 1890 or 91 until 1896 or 7.

Q. In what line of work?

A. I fired locomotive, run for two years and afterwards went in the shops and served my apprenticeship as a machinist.

Q. In the machine shops?

A. Yes, sir.

Q. Aside from your work as an engineer have you had any experience as a draughtsman or is that connected with your work?

A. Yes, drafting was a part of my railroad training and I have

had quite a little experience in drafting since I came with the
429 United Gas Improvement Company.

Q. Now you may go on and tell the court, not going too much into detail the experience you have had as gas engineer and draftsman?

A. I came with the United Gas Improvement Company in 1900 in the construction department and had considerable experience in constructing buildings and apparatus and the purchase for gas works and also quite considerable experience in electrical installation, high tension which included building and construction generally and continued in that work until 1907. After which time I went into the operating on both manufacture and distribution, that covered a period of something over two years and since that time with the exception of the two months that I have been an employé of the J. G. White Company, I have been on replacement and valuation work.

Q. What if any special experience have you had in making inventories of gas properties, making details of inventories?

A. That would cover a period of very near three years probably and that is my business now.

Q. How extensively have you been engaged in that work during the past three years?

A. Well up to within a year ago my work was practically confined to the field. I simply gathered the information and sent it in to the Philadelphia office and there it was compiled, but for the year past I have been doing practically the same thing, but I have been bringing my corps into the field, doing the work in the field.

Q. Are you acquainted with the property of the Des Moines Gas Company in the city of Des Moines?

A. Yes, sir.

Q. When did you first become acquainted with the prop-
430 erty?

A. The 4th day of November 1910.

Q. From where did you come to Des Moines?

A. I came to Des Moines from Jacksonville, Florida.

Q. For what purpose did you come to Des Moines at that time?

A. To make an inventory of the properties of the Des Moines Gas Company.

Q. Did you upon your arrival or shortly after your arrival set about the work of making an inventory?

A. Yes, sir.

Q. Did you have any assistance in doing that work?

A. Yes, I had five additional men in the field besides myself.

Q. Did you undertake making an inventory of all the property of the Des Moines Gas Company in Des Moines or only portions of it?

A. My work was confined to the manufacturing plant.

Q. What was included in that, what did you include in the manufacturing plant of which you made an inventory?

A. The various buildings and apparatus, both inside of the building and out which were used in the manufacture of gas.

Q. Did you make an inventory of anything else at the plant other

that what you have spoken of such as the works' tools or tools at the works?

A. Yes, the works' tools and everything pertaining to the works.

Q. Made an inventory of everything that pertains to the works?

A. Yes, sir.

Q. Did you make an inventory of any other portions of the plant?

A. No, sir.

Q. To refresh your recollection did you make an inventory of the office contents?

A. Oh yes, the office contents.

431 Q. Furniture and fixtures contained in the office?

A. Yes, sir.

Q. Then if I understand you correctly the portions of the plant of which you made an inventory was the manufacturing plant?

A. Yes, sir.

Q. Including the building and contents, the tools and implements used in connection with the manufacture?

A. Yes, sir.

Q. Which you speak of as works' tools?

A. Yes, sir.

Q. And of the office furniture?

A. Furniture and fixtures.

COURT: Which office do you mean, at the plant or up town?

A. Both, the one up town and at the plant.

Q. At the time you were doing that work was there any inventory being made of the distribution system of the plant?

A. Yes, there was.

Q. Under whose supervision and charge was that work being done?

A. Mr. Walter had charge of that department.

Q. Did you prepare an inventory of that portion of the plant of which you made an inventory?

A. Yes, sir.

Q. In how many volumes was the inventory that you prepared bound?

A. I bound it in two volumes.

Q. I first show you Exhibit No. 15 and will ask you if that is one of the volumes of the inventory a portion of which you prepared?

A. Yes, sir.

Q. I now show you Exhibit No. 16 and will ask you if that is second volume of the inventory a portion of which you pre-

432 pared.

A. Yes, sir.

Q. These two volumes include, as I understand your statement not only the inventory of so much of the property, as you have stated you made an inventory, but also includes the portion of the property which Mr. Walter prepared an inventory of?

A. Yes, sir.

Q. Referring to Exhibit 15 is there an index of this inventory?

A. There is.

Here the further hearing was adjourned until 9:30 A. M., tomorrow.

433 Tuesday Forenoon Session.

JULY 18, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

W. F. BRODNAX, re-called for further direct examination, examined by Judge Carr, testified as follows:

Judge CARR: I will withdraw the last question asked on yesterday.

Q. When did you begin gathering the data from which so much of this inventory which is contained in Exhibits 15 and 16 was prepared by you?

A. I began the work, sir, on November 4th.

Q. And when did you complete the gathering or obtaining of the data from which this inventory was prepared and the accompanying sketches?

A. On the 23rd day of December of the same year.

Q. In 1910?

A. Yes, sir.

Q. Then after you had obtained the data you prepared the inventory, that is, so much as you did prepare, and the accompanying sketches?

A. Yes, sir.

Q. Is so much of this inventory as was prepared by you a correct and true inventory of the Des Moines Gas Company's buildings and machinery, works, tools and office fixtures, furniture and supplies, located here in Des Moines?

Mr. BYERS: Does that just refer to the itemized statements, itemized description of the property?

Judge CARR: The question is whether this inventory and
434 these exhibits is a true inventory.

A. It was as far as care and attention would make it.

Q. I wish you would take Exhibit 15 and 16 and explain to the Master fully and in your own way this inventory, what it shows, how it is arranged and all about it?

A. I think I had better explain to the Master just how the work proceeded. Would you like to have me go over our procedure, the way we did this work.

The MASTER: All right, proceed.

A. Our first work was to make field sketches. These field sketches are drawn without scale, and the outside of the buildings were given; that is, what we consider plane elevations. Then the buildings were cut either in transverse or longitudinal sections, so that we could show the interior to the best advantage. After the work of the sketch was completed, we then went over it with the measurements and took off all the measurements necessary for the reproduction of the building in drawing form, and these dimensions were entered

on the sketches. After the sketches were complete we simply took those sketches into the drawing room and made drawings by scale. Then we took an inventory of the apparatus and machinery, etc., with this foundation, and in cases of machinery that we were not in touch with through the manufacturers, we made special drawings. So you find in some cases we have made drawings, and in others we have not. In other words, if the apparatus was standard, we didn't make a drawing of it; if it was not standard, we simply made a drawing to identify it.

The MASTER: In other words, you drew the buildings so as to show the entire situation?

A. Yes, we have in the beginning of this inventory, Ex-
435 hibit 16, we have what is known as a symbol diagram; that symbol diagram which is practically the first and second exhibits in 16, has letters and numbers to designate the different buildings and apparatus, such as holders, etc. Where a building was of the same general design throughout and had partitions, there are divisions in the building, we designate those divisions by symbols and letters and added its regular number, which was a serial number, with the other building.

Q. You better refer to where it is found.

A. If the Master will look to sketch #3, taking this plot that is bounded by say Second and Vine streets, you will see on the right hand lower corner of that plot a building designated and known as the purifying house, bearing the symbol number one with the subdivision A. Now just above that building and adjoining to it you will see the subdivision B, known as the oxide elevator. Just to the right of that you will see subdivision C, which is an oxide shed. And building No. 2, which is really a separate building is the oxide conveyor shed. So really these buildings there, while one or two are of different construction, they bear different numbers. The purifying house, A, B and C practically being the same construction and are simply known by the symbols A, B and C.

Now, take that building just to the left of that, known as the Meter room exhauster room, pumping room, etc., that bears #3, subdivision A, B, C and D. Still further to the left you will find the retort house generator house and exhauster and blower rooms under #4, with subdivisions A, B and C. There is an engine blower and store room retort house all under #4. Still further to the left we have a coal shed, condensed and scrubber rooms, #5, with subdivision A and B. Just above #3 we have boiler house con-
436 denser and engine room, and boiler house again, which are included under #6, under subdivision A, B and C. Just above this we have generator house under #7, with no subdivisions. Just to the north of that we have coal shed, which is known as #8; that has no subdivision. Now, just above that we have the coal rack, a frame coal rack and coke rack, with subdivisions A and B. Just above that we have buildings representing the store room, carpenter shop and gas room and the smith and machine shop department room, known as #10, with subdivisions A, B, C and D. Just to the right we have barrel oil store house #11. Just to the right of

the generator house, #7, we have the pump house, #12, which has no subdivision. It has subdivisions but it is not noted here because it is not necessary. Just between #22 and #23, oil tanks, we have the pump house, the oil pump house known as #13, without subdivision.

Q. You have one known as 12?

A. Yes, one is the oil unloading and the other is for the circulating system, also for the oil for the gas sets.

The MASTER: There is two oil tanks?

A. Yes, it is situated between two oil tanks. Looking over on the other plot, the lower left hand corner, we have the meter house, #14; that has no subdivision. On the opposite corner on the lower side of that same plot, we have a stable #15, which has subdivisions A *b* and C. Just above that we have the boiler house, #16, without subdivision. Just above that the storage holder #19 and we have a fire brick store house, #17, without subdivision.

I think that takes in all the buildings of the two plots. Now we have up in this separate section, up to the left, we have a frame coke shed, 53-*a* and 53-*b* and *c*; that is the three subdivisions that
437 is not included in these two plots; it is above to the left.

Now, sir, in the first plot with which we began, we have a large circle there, known as the relief holder #18; the largest circle is the relief holder. On the opposite plot we have a storage holder, #19 and #20. Coming back to the first plot we have oil tanks 21, 22 and 23. Now the plot by itself over in this corner, in the southeast portion of the map, we have oil tanks 24 and 25. There is quite a lot of miscellaneous material, tar basins and small items that you probably wouldn't be very much interested in. So you can see just how it is located.

The MASTER: Those are on different blocks?

A. Yes, sir.

Q. Mr. Brodnax, in that connection what is sketch #1?

A. Sketch #1 is the plot of the real estate.

Q. On which these buildings you have been describing are located?

A. Yes, sir; on which the various buildings are located. Now, sir, if we turn over to the beginning of the book to the inventory index, you will find the sketches are assigned certain numbers.

Q. May I suggest that you might begin with the first volume and explain the arrangement of that so that we may get it into the record.

A. Now, sir, turning to the table of contents, there is the description of the buildings, which are as follows: Now under page 1, table of contents, we have a summary: General, Detail, Manufacturing and Distribution. Real Estate. Purifying House—description, building, contents. Fire Brick Shed—description, building. Meter, Governor, Exhauster and Wash Room—description, building, contents. Retort, Generator, Engine and Blower House—description, building, contents. Coal Shed, Scrubber and Condenser Room—description, building, contents. Boiler and Engine
438 Room—description, building and contents. Boiler House Extension—description, building and contents. Generator

House—description, building and contents. Coal or Coke Shed—description, building and contents. Runway for Coal or Coke Shed—description, building and contents. Smith, Carpenter Shops and Store Room—description, building and contents. Barrel Oil Store House—description, building. Pump House—description, building and contents. Meter House—description, building and contents. Stable—description, building. Boiler House—description, building and contents. Fire Brick Storage—description, building. Fire Hose House—description, building. Coke Shed—description, building. Relief Holder #18—description, holder. Storage Holder #19—description, holder. Storage Holder #20—description, holder. Oil Storage Tank #21—description tank. Oil Storage Tank #22—description tank. Tar Tank and Evaporator #23—description, tank. Oil Storage Tanks #24 and #25—description, tanks. Old Holder Oil Tank #36—description, tank. Coke Rack—description, rack. Lumber in Yard. Gauges. Wells, Valve Boxes, Tar Separator, etc.—description, wells and boxes, works' yard, wells and boxes, holder yard. Outside Apparatus—description outside apparatus. Paving—description, paving Fences and Gates—description, fences. Piping—water, circulating, steam, exhaust, oil, gas, tar, drain, sewer, oil unloading device, gas mains in works' yard. Electric Wiring. Work Tools. Fire Protection. Improvements on Leased Property—office furniture. West Side Office—description contents. Fixture and Fitting in #50. Oil Barrel Store House—description, building. Holder Oil Tank—description, tank. Rubbish Kiln—description, kiln. Pipe
439 Coating Tank—description tank. Fences and Gates. Piping—gas, steam, water.

Q. Then comes the distribution system?

The MASTER: You have got an index with the items in it which are on Exhibit 15. That index shows on what pages the items are found?

A. Yes, sir.

Q. On the last page of this index there is some portion of the index that relates to the manufacturing plant; isn't there an inventory of the manufacturing plant?

—. Yes, sir.

Q. Just explain that?

A. That is of the loose property.

Q. No.

A. Under tools, stable equipment—those things relate to the distribution system.

Q. Now office furniture?

A. Office furniture, Exhibit #1, on page 239.

Q. You made an inventory of the office furniture?

A. Yes, sir.

Q. On page 239 that will be found?

A. Yes, sir.

Q. And the Works' tools?

A. Exhibit 2 is on page 245.

Q. That is where that will be found?

A. Yes, sir. The distribution of tools, Exhibit 3 will be found on page 253.

Q. You didn't take an inventory of that?

A. No, I did not.

Q. I find a supplemental inventory of November 31, 1910, to December 31, 1910; what does that refer to; right the last item there?

440 A. That probably was taken afterwards. I don't know about that.

Q. Now, Mr. Brodnax, beginning on page 12, volume 1, you have a statement of the real estate.

A. Yes, sir.

Q. And on page 16 you begin with the purifying house?

A. Yes, sir.

Q. You have a statement there as to the house and contents?

A. Yes, sir.

Q. And on page 17?

A. Yes.

Q. And when you get to page 18, I wish you would explain to the Master, that he may get a clear idea of that, just what those various figures they used there mean, and give him a clear understanding just what this inventory shows?

A. We have what is known as grade diagram, that relates to the excavation. We find the first item on here is excavation, of which there is 189 cubic yards. Building and foundations on page 18. Of course, we know the dimensions of the building and the depth to which the foundations were dug, and by that means we figure the amount of excavation necessary to place the foundation for the building, and in all cases we begin the estimation of the building by its foundation. Now, under the head Foundations of Concrete.

Q. The word opposite the word foundation indicates the material of which the foundation is made?

A. Yes, sir.

Q. In this instance it is concrete?

A. Yes, sir. The foundations in this case are of concrete, as you see, and by taking two dimensions of any portion of it and multiplying these together, we get what is known as the cross

441 section area and we multiply by the length in feet will give us the amount of feet that occur in that particular section. Of course we divide that by the number of feet in a yard, which will give us the number of yards on which we have based this. That work is done under the head of foundations. We have two separate sections—forms. We make up that foundation and those two added together will give us the cross section area, which multiplied by the length gives us the total yardage of the foundation.

Q. Now the word foundation, your figure following 2′ 7″—one dash or dot, and following the figure 2′ 3″, what do those dots mean?

A. Feet or inches; a single dot is the feet and two dots, inches.

The MASTER: Why not take up each one of these items and let him make the explanation and take the value all at once?

JUDGE CARR: This witness is not offered as a witness on values. The only purpose was to explain the inventory so that you fully understood it.

Q. You may go on.

A. Right below under foundation comes up the question of forms. Forms are merely boards placed in a trench in order to keep the concrete in form. Foundations of brick. Certain parts of that is represented by sketch- 4 and 5 and 6. That does show the fact that we have brick foundations as well as concrete.

Q. What does the letters B. M. mean under the word forms?

A. Board measure; that is, board feet. We have a sectional foundation 5′ high and the wall 13″ thick; another section 2″ thick by 17″, together will give us what is known as a cross sectional area. That 12′ 4″ just below that, multiplied by 2′ by 5.60 shows we have two walls multiplied by the figure of the cross section area, and gives a certain number of feet. 9′ 1″ by 5.64 again gives 51 cubic
442 feet, which gives 190 cubic feet in the cross section. We have then 190 cubic feet multiplied by 21 bricks, gives us 3990 bricks. Our back filling is the amount of filling that goes in after the walls are up and the trenches filled on the opposite side. We have here the number of brick. In order to ascertain the number of bricks in the building, we simply determine the heighth and length of the wall which gives the square feet surface area; that multiplied by a certain number of bricks gives the total number of bricks in the wall. Here we have a north wall 13″ thick. That of course is governed by this total brick shown on the bottom of the last page. That wall is 30′ 1″ by 31′ 6″ high; and being a 13″ wall, we have 22 1/2 brick per square foot. The total number of brick is 21319. Now where there is any difference in the east and west wall due to the openings, we enumerate those separately. Where the walls are similar, we sometimes say east and west wall and figure twice that number. The north wall is 13″ thick, 22 1/2 bricks, 30′ 1″ by 31′ 6″, which gives us multiplied by 22 1/2, the number of bricks in that particular wall. Our water table is the extension or rather the thickening of the wall. We keep that separate, as we do fancy trimmings, such as pilasters, etc. We have a water table there 31′ 9″ by 1′ by 7 1/2. Now the gable is 17″ thick. The dimensions of that gable are 30′ 1″ by 8′ 4″; but as it is triangular in shape, we are only entitled to half of that, divided by 2, which gives us the total area. As it is a 17″ wall, we are entitled to 30 bricks, which gives us a total of 3750 bricks. The water table again on the inside of the building, which is really probably a misnomer—it is a thickening of the wall; but it
443 is a water table just the same. Now the cornice below, that is 4″ thick, of which we are entitled to 2″. 30′ 9″ by 2′ 4″ which is the thickness of the cornice——

Q. Where you say entitled, what do you mean?

A. There is that many brick there. I thought probably it might create some confusion from the fact that the water table was inside, just merely a thickening of the wall, just the same as on the outside.

The cornice there is 30′ 9″ by 2′ 4″ by 7 1/2 bricks. We have another cornice 30′ 9″ by 1′ 4″, also entitled to 7 1/2 bricks; then we have two cornices there which are 18′ by 1′ 4″ the same thickness, and consequently are entitled to the same bricks.

Pilasters. Pilasters for this particular wall are 17′ by 2′ 5″ wide. Two of those are 4″ thick which entitles us in that case to 616 bricks. Now, we did not go into the detail of the wall opening- because it entails a tremendous amount of work. All those openings are worked out and deducted from the total number of brick in the wall.

Q. Less openings, 4284, means what?

A. It means it is deducted from the total number of brick in the wall.

Q. That is from the total number of brick which would be in the wall if colid?

A. Yes. Now the south wall which is 13″ thick is the same as the north wall. You see it represents the same number of bricks; but the number of openings represents a different number of brick and consequently the total number of brick in the south wall is slightly different from what it would be in the north wall. The east wall is 13″ thick—97′ 10″ by 31′ 6″. Being a 13″ wall, we are entitled to 22 1/2 bricks. We have a water table, both inside and out, as shown there, 4″ thick. Now on the next page
444 we come to east wall continued. The cornice again is treated as we see it here. The pilasters are treated almost as they were in the wall just described. The number of openings are estimated and deducted from the total number of bricks. Now the walls, division B, are 4″ thick. That of course is based upon the same number of brick that we had for cornice and pilasters, only this is merely a little light shed attached to the building.

The MASTER: These final figures, 233, 932 is the total number of brick used in the construction of the purifying house?

A. Yes, sir. Again referring to sketches 4 and 5 of building 1, by referring to those drawings we see that the length of that roof is 102′ 10″; multiplied by its width 38′ gives us 3908 square feet.

The MASTER: Slate roof?

A. Yes, sir. As we have to figure the roof for the monitor, which is a ventilating and lighting arrangement, usually on the top of the building, we deduct the monitor opening which gives us the net amount of slate we have in the roof on the building alone, because, we treat the monitor roof later on. We have 3396 square feet for that roof, and under roof slate continued, we have this same figure, 3396, divided by 100, which gives us what is known as 33.96 squares.

The MASTER: 10′ squares?

A. Yes. Now, we have roof slate division B, 13′ by 12′ 9″ which gives 166 square feet. That divided by 100 gives us 1.66 squares, total 35.62 squares. Now again referring to sketches 4 and 5 of which there is a detailed drawing of the roof and roof sup-
445 ports, roof trusses, etc., we get a total of 2090 feet board measure; we also get 5061 of board measure. We have iron in the way of supporting rods, etc., at 451 pounds. We have the roof

sheathing on which the slate rests, 3562 square feet. That of course might be specified as board measure, but as long as it is sheathing we know it is boards.

Now, we take up the question of the monitor slate; that is the roof and the slate, and as the monitor roof projects a little over the opening of the main roof of the building, the amount of slate shown for the monitor of the roof is little in excess of the amount of the opening in the main roof. Now we have the roof supports which represents the rafters, studdings, etc., we have a certain amount of iron, and that gives us 892 feet, board measure, and of iron we have 134 pounds; sheathing we have 622 square feet.

Flashing. Flashing forms the joint between the roof and abutting wall. Tin 144 square feet. Floors of concrete 6″ thick, gives 2753 square feet. We have certain wood that enters into the floor, the operating or filling floor, and the amount is 1169 square feet; that is flooring, running longitudinally with the building is a partition for dividing the basement of the building so that it is rather more or less curbed for the use of the oxide mixer, etc. The forms for that are 498 feet board measure. Certain teimbers used to support the operating and filling floor, 26932 board feet. The doors are of the battem construction form. We classify the doors so that we can classify them according to the form of construction of the sills. We have four batten doors representing 155 square feet. One panel door which represents 54 square feet. We have windows,
446 plain, 70, which represents 325 square feet.

The Master: Does that include the window frames?

A. Sashes, yes sir.

The Master: The whole thing?

A. Yes, sir.

Windows continued on the next page—we have 5 windows of the biggest frame type, 510 square feet. The sills are of cut stone. We have 34 cubic feet. The lintels of cut stones, 72 cubic feet. We have iron lintels at 2555 pounds.

Painting—west and south walls 3435 square feet.

Painting woodwork, windows and doors—895 square feet; and two sides would equal 1760 square feet.

Pit for piping. 180 bricks. Driveway, just on the outside of the building leading to the building, represents 587 bricks. Also flooring in connection with this, which is 2″ plank which represents 18′ board measure, and 56 square feet of brick laid on edge.

We have stairs, common, three treads; these we have finished, including hand rail, 16 treads. Platform is 160 feet, B. M. The brick steps is 189 brick.

The apparatus for this building, on page 25, one steel hydraulic elevator platform 8′ by 8′ installed in 1893. Four purifying boxes 7′ by 20″ by 20′ including hoist and center seal. One bricket oxide conveyor. One bricket manufactured by Link Belt Engineering Company, with 1-5 horse power, 5″ by 6″ vertical engine installed in 1905. Piping we have 327 feet 6″ pipe. 2-6″ valves.

Q. I want to ask a few general questions now. Mr. Broadnax, you

have given the pounds of iron in some of the structures, how did you arrive at that?

447 A. In detail per foot.

Q. You didn't of course weigh it?

A. No, sir.

Q. You have given a large number of dimensions; how did you get those dimensions?

A. By the most accurate measure available, sir, with a steel tape.

The MASTER: By actual measurement?

A. Actual measurement, yes, sir.

Q. You have given the number of brick in various parts of the building, and in the building as a whole; how did you ascertain the number of brick, by actual count?

A. No, sir; we took it by the actual dimensions of the building wall. We simply took the heighth and length and multiplied the two together, which gives us the superficial area of the wall in square feet. Then there are certain authorities that furnish the number of brick per square foot, for the different thicknesses of the wall.

Q. What do you mean by certain authorities?

A. That is rather a mooted question in different parts of the country, as to just how many brick enter into a certain wall of a certain thickness.

Q. You say authority? Between whom is it a mooted question?

A. Generally among the contractors.

Q. You took a standard measurement did you?

A. We took what we considered the nearest we could get.

Q. What did you take; have you any way of designating it?

A. There was a work gotten out by the building department of the city of Minneapolis, Minnesota; they have gotten out one of the most complete works we know of in that line.

Q. As to the slate and roof and the tin work and wood

448 work, etc. How was that gotton at?

A. That was gotten at by actual measurement of quantities.

Q. Mr. Brodnax, have you treated each of the buildings in this inventory in the same manner that you have explained to the master you have treated the purifying house?

A. Yes, sir.

Q. Your inventory shows in detail the building and its contents just as the inventory of the purifying house shows the building and contents, and in the same manner?

A. Yes, sir.

Q. Now, you may turn to your sketch book, Exhibit 16, the book containing the sketches, and give the Master *a* somewhat more fully than you have already done what the sketches show of this building.

A. Sketch #4, Building 1. That part of the drawing shown in the northeast corner of the exhibit represents the building as if it were cut through the upper line of the windows and the top removed, looking down. The black shows the brick work so cut in the removal of this section. The sketch immediately below that shows the elevation of the building as if it were taken in a photograph, showing the windows the pilasters, cornice, water table, roof and monitor; also the stairs on the outside of the building. Just

south of that section we first referred to, we have a view of the building looking north, which shows also the elevation of the building as if it were photographed, and the cornice and pilasters, water table, monitor, doors and window openings. Immediately below that we have what is known as a transverse section. The building is cut through the elevator shaft on the line AA and that part of the building next to us as we view it, and the black lines in
449 that case show the sections so cut.

Q. I wish you would explain some of that dotted work on the bottom.

A. The dotted work at the bottom here merely represents the earth lines; for instance, the hatch work running this way indicates concrete floor is resting on earth. It also shows the earth surrounds the foundation pier walls. This hatching here, or dotted work, represents concrete. The black represents brick work; both of which are in this case cut in sections. Referring again to the section above here of the plant, the section we first noticed, we noticed some squares there that are shown in the building. These squares or rectangles are the purifying boxes referred to in the inventory.

Q. What are those boxes, what material?

A. They are cast iron with steel lids. And between the boxes and just at this point here is what is known as the center seal, used to deflect the change of current or flow through the various boxes. The section down in the southwest corner is an enlarged section of the walls of the building, so that the figures can be given more in detail than if we used the smaller section shown above. We turn to sketch 5, the same building, only instead of looking at the building we have a plan or section there cut lower down. That is cut through a line lower than the first section. The view of the building is taken from the opposite side from which the other views are taken in order that we may be able to get four views of the building and in order to figure correctly the openings in the wall. That also shows the end view of that which is on the northwest corner of the paper, and shows the outside stairway leading up into the building, the operating floor. The section immediately below the elevation given here shows the purifying boxes, and that is a section cut
450 immediately through the middle so that we can see the interior of the building, shows the boxes in elevation and also their column of supports and structural steel supports. Immediately above that is a section of the roof trusses and of the framing of the monitor.

Turning over to sketch #6, building 1, we have a separate drawing of the foundation of the building. It is a little hard to distinguish sometimes the actual building from the foundations. So we adopted the plan of using a separate foundation drawing. Practically the figures are the same on that as on the original drawing, only more figures, because the scale is larger and we have a better opportunity to write them.

In section #7, we have the piping for these boxes we have spoken of. The pipe is given in detail and all the connections of specials or fittings are given in detail. Also we show the center seal by

means of which we deflect the gas and change the current for flow. Those pipes are 16 inch cast iron.

Now in section #8 we have a one-fourth section hoist, being symmetrical, we used one-fourth. It is for lifting the covers of the purifying boxes. They are too heavy to lift by hand and consequently the mechanical device for that purpose.

Sketch #9 is a shed lean-to in connection with that same building, known as sub-division C. The main foundation and the amount of structural steel and the amount of corrugated iron covering is there, so that all the quantities are shown.

Q. Do the sketches contained in this inventory show all of the buildings which you have described, in the same manner that you have explained the sketches of the purifying house to be shown?

A. Yes, the work is carried on in the same general order.

Q. Now, are there any of those sketches that need any
451 special explanation, so that the court will understand them; if there is you may refer to them.

A. No, sir. We might turn over to the other holders.

Q. Where would we find that?

A. Sketch #56.

The MASTER: What do you mean by holder?

A. Holder for storing gas. The holders are practically divided into two classes, known as the steel tank and brick tank. The steel tank is usually built above ground and contains the water necessary for sealing the holder; and the others are built underground with a brick tank, which has the same general functions as the steel tank. The holders now before you in section 56, #18 and #19 are of the brick tank type. Now we have here in #19, is on the left, and the holders themselves are only represented in dotted lines, because they are more or less standard than the tanks themselves. The tank is the black line you see there on the right or left hand lower side of the sketch, and the black line you see connecting those two at the bottom is the concrete floor. That tank must be water tight. Consequently the class of brick and method of laying is the very best obtainable. Right above the tank you see these columns which rise up which are guides for the holders or lifts, as the gas pushes them out of the water and rises up, and are inflated or filled. The work you see around the top here—lattice, is simply to keep them in place. Their inlet and outlet pipes you see here. The gas is put into the holder through one of those pipes and the holder rises as the gas is admitted underneath and continues to rise until the holder becomes full.

The MASTER: It is a sort of an inverted tub?

A. Yes, sir, that is just what it is. So both of these holders
452 are of the same general type. The framing you see on both is simply to support the holder when it is down in its lowest position. Those walls are very thick and heavy; have to be so, of the very best material, to make them water tight.

The next page is sketch 57, which is our large storage holder of 1,132,000 capacity, but there is nothing shown there except the steel tank which I stated is above ground in this case, instead of being bricked below the ground as in the other case. The drawing

also shows the housing around the tank of this particular holder in order to prevent excessive colds affecting the water inside of the tank.

We turn to sketch #58, we find the oil storage tanks. Those are merely steel tanks for the storage of oil and are placed in these brick implacements, so in case of accident or damage to the tank the oil will be corralled and cannot escape. The brick walls are of heavy construction and concrete foundation for the tank as you see.

Q. What is the capacity of these tanks Mr. Brodnax?

A. We have one of 100,000 gallon capacity; we have one of 64,000 gallons, and we have two of 321,200 gallons each.

We have here sketch #68, a detail of the fences and gates; the fences surrounding the property and the gates in the openings, giving a general idea of the detail of that work.

Q. Mr. Brodnax, there are some features, I think, of sketch #13 and also of sketch #15, it would be well for you to explain.

A. Sketch #13. This pipe in sketch 13 is in connection with the exhausters and station meters and other apparatus. The general idea of its complication and its intricacy can be gotten from that.

Q. What is building #3?

453 —. Building 3 is the meter governor, exhauster and wash rooms.

Q. Can you give a further explanation to the Master as to just what that shows, sketch 13?

A. That simply shows the detail of the piping necessary to connect the various pieces of apparatus, such as meters and exhausters and safety seals, etc. And you can see very readily how the pipe is cut up and we have here the certain symbols that represent the specials entering into that pipe, and also the valves. You can see of course the number of valves that enter into it. The plan immediately below the upper left hand corner shows the elevation as if looking from the level from a horizontal plane. Still further down to the left hand corner is represented another point or section showing the complication, and if you turn and look to the end of the sheet, you will also see how this pipe would appear if it were cut on certain sections or lines.

Q. I notice figures on the sketch, please explain what they are and how they are obtained?

A. Those figures are obtained by actual measurements, determined first by the size of the heighth, and then we take our actual measurements—simply a question of taking the measurements.

Q. You have a few times spoken of estimates in referring to measurements; I want to ask you whether your figures appearing on these sketches as giving the dimensions are all obtained by actual measurements?

A. Absolutely so. We have relied entirely on dimensions and not *ny* estimates. I have used that term from habit perhaps. Now we will take sketch 15, the plan is shown in the left hand corner here and is the plan of the foundations for the various apparatus installed in that building.

Q. What building is that you are speaking of?

454 A. That is again the meter governor, exhauster and wash rooms.

Q. It is the same building you were explaining the pipes in?

A. Yes, sir; that shows the plan of the foundations, of course the apparatus removed, looking down on them. Immediately below that at these points here we have sections which show these foundations cut through different lines; that is, of course, the section is cut and the part removed next to us, which shows the material. Of course that opening there signifies nothing. That black represents brick and this spotted or hatched represents concrete. Underneath each section we give a letter at which this point was cut.

Q. Did you show what represents the brick work?

A. Yes, sir.

Q. Have you any further explanation to make of that sketch?

A. No, sir, I think that is clear to the Master.

Q. Now, you might explain briefly sketch 16, which is a little different class of sketches.

A. 16 represents the street main governor and its piping; its by-pass connections and piping.

Q. Here again the figures that are bare upon the sketch show the dimensions of the pipe?

A. Yes, sir.

Q. And taken from actual measurements?

A. Actual measurements.

Q. Now, Mr. Brodnax you may tell the Master whether each of the buildings over at the works and all of the apparatus in those buildings is shown in these sketches with the same completeness, the same care that the buildings that you have refered to in your testimony specially are shown?

A. They are, sir. This is a fair type of the work that was
455 done when the inventory was made.

Q. In Exhibit 16, in addition to these sketches, we find photographs; were you present when those were taken?

A. Yes, sir.

Q. And do you know the position from which those various views were taken?

A. I do because I pointed them out and adjusted them for the photographer.

Q. Are those photographs correct photographic representations of what they purport to show?

A. Yes.

Q. Take plate 1 and tell the Master what that is, what it shows and the point from which the picture was taken?

A. The picture is taken from the northwest of the works, on the west side of the Des Moines river looking southeast.

Q. Now in the foreground is the river and the bridges across the river?

A. Yes, sir.

Q. Now, confining your answer to such buildings as are shown in the photograph and as are a part of the buildings of the company, just state what they are.

A. We have the storage holder first on the right. Immediately below that we have the second storage holder.

Q. The large storage holder, when that picture was taken was pretty well filled, was it?

A. Pretty well filled, yes sir.

Q. And the other one was not so well filled?

A. Not so well filled. Immediately to the left of that is the purifying house, known as building- #1 and #2, which we have already described. Immediately to the left of that is the
456 office exhauster and meter room, extending down—it is a little hard to describe—it really embraces part of building- 3 and 4, the ends of which we can see.

Q. Now, pass to plate 2. From what position was that picture taken, and what does it show?

A. That picture was taken from the southeast, directly southeast from the works.

Q. Looking northwest?

A. Looking northwest, yes sir. And shows on the extreme left purifying house- #1 and 2 which we have described. And also shows the gable there and end of the engine and blower room. Then we come to what is known as the relief holder. To the right of that we have a very slight view of the coke shed, and to the right of that we have the carpenter, smith and machine shop.

Q. Plate #3 is what, and taken from what position?

A. Plate #3 is the office exhauster and engine room of building #3. It also includes a part, as I said, of building #4 and #5.

Q. And that is taken from what point?

A. That is taken slightly south of west.

Q. Looking in what direction?

A. Looking northeast.

Q. Taken from what street?

A. It is taken from First street.

Q. What is the street that is shown in the picture?

A. That is First street.

Q. What is the light mark that is shown at the bottom of the picture?

A. That is concrete curbing.

Q. On the inside of that is what?

A. Sidewalk and curbing.

Q. What is that sidewalk?

457 A. Concrete.

Q. Now plate 5, explain that?

A. That is the smith carpenter shop and store room, looking southwest.

Q. Do you find anything else in the picture?

A. The coke shed is to the right.

Q. There seems to be some railroad tracks there?

A. Yes, sir.

Q. What street is that, on which street are they laid?

A. That is Vine.

Q. Do you know what tracks those are?

A. The Rock Island.

Q. Plate #6, explain that?

A. That is the same building smith and carpenter shop and store room, looking northwest. The little building there which partly projects through the fence is the oil store house, and the line immediately below that is the brick paving.

Q. What street is that shown in the foreground?

A. That is Second street.

Q. Plate #7 is what?

A. Plate #7 is the purifying house, building #1, looking northeast.

Q. Plate #8?

A. That is the building I have described. The purifying house again, building #1, looking west, the same building from an opposite side.

Q. What is this in the foreground?

A. We have an oil pump house and a small portion of the relief holder. To the right we have the end of the generator house.

Q. Now I notice a projection on this building; you have spoken of a monitor, as you term it?

A. Yes, sir.

Q. Is the projection we see there about the roof the monitor?

458 A. Yes, sir.

Q. What is that; what office does it perform?

A. It is simply for the use of light and air—ventilation principally.

Q. Take plate #9.

A. That is the other view of the purifying house building #1 already described.

Q. What is the building we see in the right hand side corner?

A. That is the generator house.

Q. That seems to be of a broken steel and corrugated construction; I wish you would tell the Master about that.

A. That is intended for future extension. In case the building is to be extended any time, they simply build an abutting wall on to it, and these grooves or recesses keep the alignment.

Q. What is the object of corrugated iron?

A. It is placed in the building so it can be removed without much *much* cost.

Q. When was that building constructed that you see?

A. I think it was built in 1909.

Q. It is of recent construction?

A. Yes.

Q. And it was left, as I understand you, in such a way that if future extensions were made they could extend the building in an economical way?

A. Yes, sir.

Q. What is the little building in the foreground?

A. Circulating pump house and also the oil pump house for the gas.

Q. What is the structure in the left hand corner?

A. That is a portion of the relief holder.

Q. The holder there is down pretty well—collapsed?
459 A. Yes, sir.
Q. I notice in this relief holder, the picture of it a column with a guide or something of that sort going up, that is a part of the structure, is it?
A. Yes, sir.
Q. Now, when that relief holder is full, where would the top be?
A. The guide wheel would be very near the top—at the cross lattice work.
Q. Did you explain how those holders are constructed?
A. I have the Master's explanation of the tub, but we did not get the double tubs.
Q. Unless that is clear, I wish you would make it clear, how those holders operate?
A. The holders are of such height that if we had our lift in one piece, our tanks would have to be correspondingly deep. In order to avoid that they have divided that tank into a series of sections ranging from one, 2, 3 and 4 sections. Now, just as soon as the first section comes up—it has a grip something like my hand here, this part of the end is filled with water, and the first comes up and that engages the second and the second comes up and that engages the third, and the third comes up and that engages the fourth. It is very much like the old time field-glass telescope. The number of tubs are in proportion to the number of lifts, if we have one lift, we have one tub, and if we have two lifts, we have that tub engaging another and so on. The gas does not escape between the sections, because this section is filled with water.
Q. What does plate #10 show?
A. The upper figure there is the relief holder referred to. Immediately below that is the other side of that circulating end oil
460 pump house, and to the right of that is the fire hose house, and further over beyond that behind the lamp post is the device for unloading oil from oil cars.
Q. And those tanks in the distance are what?
A. Tanks of oil—tank cars.
Q. Standing there to be unloaded?
A. Yes, sir; in the foreground we have the paving—of course brick on edge.
Q. Take plate #2.
A. Hose house building #33 and the generator house, that is looking north immediately below. To the right is the coal shed.
Q. Take plate #12.
A. The generator house, building #7, looking west. The building immediately in view is the generating house.
Q. That is the building the corner of which showed in one of the previous photographs you explained?
A. Yes, sir.
Q. What is the extreme right of the picture?
A. That is a coal shed.
Q. And what is this material piled up here in the picture?
A. Coal.

Q. Take plate 13.

A. Immediately to the front and above is the runway that connects the operating floor with the elevator in the coal shed. Just below that is the boiler house extension; I believe it is known as division C in building 4. To the left is the north portion of the generator house. On the right is the coal shed referred to in the other photograph.

Q. Now go to plate 14?

A. This is the interior view of the generator house, build-
461 ing No. 7 ground floor.

Q. What are the things shown in the pictures, the principal objects?

A. The principal objects is the blower or the fan for supplying the air for blasting the fires up to the required heat for making gas.

Q. What else?

A. Blast pipe which leads from the blower to the various shells of the set. Immediately below that and to the right is one of the minor shells in connection with one of the gas sets.

Q. Take plate 15.

A. Plate 15 is to the left and to the right are the generators of one of the shells, of the generator set known as the generator.

Q. Now the one to the right of the picture is what?

A. Is the generator.

Q. And what is the diameter of that generator?

A. I think that is the 8 foot 6.

Q. What is the distance from the bottom, or the distance of the plates as shown in the picture, from the bottom up to the first row of brick?

A. I don't remember Judge what the lengths of those plates are—probably six or eight feet.

Q. What is the pipe shown that appears to enter or leaves the shell on the opposite side?

A. That is a blast pipe that led from that blower referred to, supplies air to the fire, heating the generator preparatory to making gas.

Q. Now take plate 16.

A. That is the interior view of the generator house, building #7, on the operating floor.

Q. That simply shows the valves and elevators and gauges and that necessary part of the equipment for making gas.

A. Well, it would be the part of the equipment handled
462 by the operator for making gas.

Q. Where is that room located with reference to the generating houses?

A. It is practically the second floor of the generator house.

Q. And how high is it?

A. I think that is about 14 feet. That is all cast iron plates on steel structure, this operating floor you refer to.

Q. Take plate 17, shows what?

A. 17 shows the boiler and engine house, A and B subdivisions looking north.

Q. Take #18 shows what.

A. No. 18 is the interior view of the engine condenser room, building 6-A and shows the piping, valves and specials, and the connection with the piping from the condensers; also shows the high speed engines for driving the blowers.

Q. What is the diameter of those pipes shown there?

A. I think they are 20 inch, if I remember correctly.

Q. Take plate # 19, shows what?

A. Shows the oil storage house. I think it is known as #11, looking northeast, of reinforced concrete construction.

Q. Take 20 shows what?

A. 20 shows the oil tank and evaporator #23, oil pump house building #13. That is one of the tanks in brick implacements I referred to.

Q. With the holders in the background?

A. Yes, sir, the large storage holder and the second storage holder; also the small pump house for unloading oil.

Q. What does plate 21 show?

A. Shows the oil tank #21 and gas holder #18, according to our diagram there. That tank is shown with a submerged head, has a water covering at all times for prevention against fire.

463 Q. What holder is that #18.

A. That is the relief holder.

Q. Plate #23 shows what?

A. Shows the oil tanks 21 and 22 and the gas holder #18, looking southeast.

Q. Take 23?

A. That is the station meter house #14, looking southeast.

Q. What is the street that is shown, if that is a street shown in the foreground?

A. First street.

Q. How many meters are there in that house?

A. One.

Q. How large is it?

A. 14 feet, I think.

Q. 14 feet in diametor?

A. The size designates both, the diameter and the length; I forget whether it is 14 or 16.

Q. Well approximately that?

A. Yes.

Q. The house was built to hold the meter?

A. Yes, sir.

Q. And the meter practically fills the house?

A. Yes.

Q. What is the object shown in the foreground near the building that looks as though it might be a track.

A. Yes, sir it is.

Q. What track is it?

A. The railroad track.

Q. Do you know which one of the roads that belongs to?

A. No. sir, I don't, Judge. It is a track of one of the

464 railroads.

Q. Which street is it, Vine or First?

A. First is the one looking along the line of the fence to the right.

Q. Is that Market street?

A. The one to the right?

Q. Where the switch stand is, the one in the immediate foreground, is that Market street?

A. East First and Market, yes.

Q. Which is Market, the one that has the track on it?

A. Yes, sir, that is Market.

Q. Then the one along the fence we see is First street?

A. First Street, yes sir.

Q. Take plate #24 and describe what that shows?

A. Plate 24 has the stable in the immediate foreground. Further to the right we have the larger holder.

Q. In what condition was the holder when that was taken?

A. It was very near filled; nearly fully inflated.

Q. Is there anything there that indicates those sections you have described to the Master?

A. No, sir; it seems to be behind the lattice.

Q. What street is that that appears in the foreground?

A. That is on First street.

Q. Take plate 25, what is that?

A. That is the large storage holder referred to.

Q. How many of the sections of the holders can you see in that photograph?

A. There are three sections already out. The lower section has not been lifted, only a very short distance.

Q. The lattice work you see in the photograph, does that show where the section is?

A. No, sir, I think the shadow of the lattice catches that
465 and blurs it.

Q. That is about the location.

A. That is about the location of it.

Q. At the bottom of that photograph appears to be a fence, what is that which appears there with windows in it?

A. That is the brick enclosure.

Q. That is the brick work, is it?

A. Yes. By the way, Judge, let me go back to that again. I see that lower lift now. Strike out my answer relative to that life. I wanted the Master to see that. That lift appears here. (Shows same to Master.)

Q. Take plate 26, what is that?

A. That is the second storage holder known as #19.

Q. That is partly filled?

A. That is partly filled.

Q. Take 27.

A. Shows the boiler #16 and stable #15 looking southwest.

Q. Does that show the street?

A. That is all within the limits of the yard.

Q. Take plate 28.

A. That shows the oil tanks, storage tanks 25 and 24 looking southwest.

Q. Well, does it show anything else?

A. Shows the railroad tracks here.

Q. What street are those tracks on?

A. I think they are on Elm.

Q. Do you know what road they belong to?

A. I believe it is the Wabash.

Q. Isn't it the Q., the Burlington?

466 A. The Burlington.

Q. Where will the inventory of the works' tools be found?

A. On page 245, sir.

Q. And where does it stop, at what page?

A. At the bottom of pages 250.

Q. 250 or 252?

A. It goes down to the bottom of page 252.

Q. Then beginning on page 245 and ending on page 252 inclusive is an inventory of what you speak of as the works' tools?

A. Yes, sir.

Q. What do you mean by the expression works' tools?

A. They are the tools necessary to carry on the operation of the gas works.

Q. At what point?

A. In this case it is the tools necessary to carry on the operation of the company at the works.

Q. In other words, the tools used at the works.

A. Yes, sir.

Q. Not including the tools used in connection with the distribution system?

A. Yes, sir.

Q. Is that a correct detailed statement of the tools of the company had at the time at the works at the time this inventory was taken?

A. Yes, sir.

Q. Where will the inventory of the office furniture and supplies be found?

A. On page 239.

Q. It begins on page 239 and ends where?

A. It extends to page 244.

Q. Is that a correct detailed inventory of the property of

467 the Des — Gas Company in the office at the time the inventory was taken?

A. It is, sir.

Q. Is that the contents of the furniture and fixtures and supplies in the main office solely, or does it also include the furniture and fixtures and supplies in the office at the works?

A. It includes the whole.

Q. Is there anything in the inventory that designates which is the office at the works and the main office—I call your attention to the word- main office on page 239, and the words works office on page 243?

A. Yes, sir.

Q. Beginning on page 239, that is the inventory of the furni-

ture etc., in the main office, down to the words "Works Office" on page 243?

A. Yes, sir.

Q. What follows then is the furniture, etc., at the works office?

A. Yes, sir, that is correct.

At this time, 12: M. an adjournment was taken until 1:30 P. M.

468 Two o'clock p. m., TUESDAY, *July* 18, 1911.

W. F. BRODNAX, being continued on direct examination by Hon. George H. Carr, testified as follows:

Q. Among the apparatus of the company is there a machine used for the purpose of ascertaining the candle power of the gas?

A. Yes, sir.

Q. What is that called?

A. It is known as a photometer.

Q. In what building is it installed?

A. It is installed in building No. 3.

Q. I wish you would refer to the inventory and explain to the Master how it works and its mechanism generally and the purpose for which it is used?

A. May it please your honor, will you refer to page 41 You will note there under the head of apparatus the first item appears as one Goodwin bar photometer. This was originally installed in 1900. The use of a photometer is by means of a standard light to determine the value of the light that is to be standardized. The standard light in this particular case is made directly from the gas that is being tested and due to the form of the lamp and the portion of the flame that is shown we reach a standard. Now that so called standardized lamp is in turn standardized by a separate lamp known as the Harcourt pentaine, that is a separate lamp and burns a very light volatil oil. It is oftentimes used to standarize the standard from which the ordinary consumer's gas, gas consumed by the ordinary consumer is standardized.

469 We have two lights equidistant with a bar which is 60 inches long which is five feet, and between those two lights we have a traveling carriage that the operator looks through and when that carriage is just right the point at which the lights bear the same relationship to each other, become practically the same intensity then by reading the figure on the bar we can see the value of the light to be tested by the light that has already been standardized.

Q. Whereabouts in the inventory do you deal with that apparatus?

A. That appears on page 41 of Exhibit 15. And again the room is to be found in building 3, sketch No. 11. In the southeast corner of the building shown in sections, in the corner here we have a room marked off there, known as the photometer room. That room is made dark so that the action of light will not affect the photometer, on the outside.

Q. The natural light is excluded from the room?

A. The natural light is excluded from the room in order that the full benefit of the artificial light may be gotten.

Cross-examination by R. O. BRENNAN, Esq.:

Q. Mr. Brodnax, where is your home?

A. Well my wife is at the present time in Bethany, Pennsylvania. At this time or two or three weeks prior to this I was in California in connection with the J. G. White Company.

Q. When you came to Des Moines in November 1910, was that your first visit to this city?

A. Yes, sir.

Q. You came here at the instance and request of whom?

A. Of the construction department of the United Gas Improvement of Philadelphia.

470 Q. Had you any acquaintance with the local officers of the Des Moines Gas Company up to that time?

A. Yes, I knew both Mr. Haines and Mr. Vincent.

Q. You had met them somewheres else outside of Des Moines?

A. Yes, sir.

Q. What do you call your position, that is what is its technical name.

A. Engineer I judge sir, gas enginee-.

Q. Your duties during the past three years as I understand you have been devoted chiefly in making inventories of gas plants?

A. Yes, sir.

Q. Did you make an inventory of the gas works of Minneapolis?

A. Yes, sir.

Q. Of the apparatus and manufacturing p*mant*?

A. Yes, sir.

Q. Paid no attention as I take it or did not engage in the work of making inventories of the distribution system?

A. No, sir.

Q. And did not in this case?

A. No, sir.

Q. You are employed by the United Gas Improvement Company directly?

A. Not at the present time, no sir.

Q. You received your instructions to come to Des Moines from Philadelphia?

A. No, I received it from the western office of the J. G. White Company whom I am now an employé of.

Q. Do they do work for the United Gas Improvement Co.?

A. Do I at the present time?

Q. Does this White company?

A. No, sir; they have no connection.

471 Q. They have no connection with the United Gas Improvement Co.?

A. No.

Q. What is the general character of the business conducted by the White Company?

A. General contracting, ga- and electrical both.

Q. How long have you been associated with that company?

A. About two months and a half.

Q. Prior to that time with whom -ere you associated?

A. For ten years prior to that time with the United Gas Improvement Company of Philadelphia.

Q. And in what capacity?

A. First, as constructing engineer probably for six years, or five years, I don't know just the time exactly, and then was in operating both manufacturing and distribution for say three years. The rest of the time has been in connection with inventory work.

Q. Where have you made inventories during the past three years?

A. I made an inventory for Syracuse, New York, Allentown, Pennsylvania, Reading, Pennsylvania, and Minneapolis as stated and Des Moines.

Q. Have you performed any work in Omaha?

A. Do you mean in connection with inventory work?

Q. Yes.

A. No, sir.

Q. When did you first come to Des Moines for the purpose of making an inventory of the property of the Des Moines Gas Company?

A. I think I arrived here on the 4th day of November, 1910.

Q. When were you here prepared to go forward with your work?

A. November 4, 1910.

Q. How many assistants did you have in connection with your work?

A. Five.

472 Q. Did you work continuously from the 4th day of November 1910 until the completion of the work?

A. We did, yes.

Q. Of course excluding Sundays?

A. We didn't exclude Sundays in one or two instances we worked through, kept it up pretty continuously.

Q. Were you furnished by the Des Moines Gas Company any data or information from the books or records in connection with the inventory?

A. In some cases, yes sir.

Q. And what part of your inventory represents information and data from that source?

A. Well there is quite a good deal of it. We had some drawings that we took notes from and then checked against the drawings not relying of course on the existing drawings but rather basing our own judgment and own measurements on our own drawings. It was on our own finished product.

Q. In the inventory Exhibit No. 15 I note you give what purports to be a history of the buildings some of them mentioned there, that is as to the time of their construction?

A. Yes, sir.

Q. From what source did you derive that information?

A. Wher- it could be obtained and where the buildings were constructed by the United Gas Company and any records of those buildings were obtainable we took those dates and where such information was not available we sometimes got the information from the old employés of the company as best we could.

Q. Some of this information you secured from the records at the *of the* office of the Des Moines Company?

A. Yes, sir.

473 Q. You say you personally superintended the measurement- that were made in every instance?

A. I did, yes. Now just wait a minute, you mean at the time the measurement was taken was I with the men in every case?

Q. Yes?

A. No; that was impossible. I simply checked over the measurements in a great many instances, checked through after they were completed. It would be impossible with three corps of men in the field to see every measurement that every man took of course.

Q. Were you present at any time when measurements were actually taken?

A. Yes, and took some of the measurements myself in some buildings that I sketched or drew.

Q. Exhibit No. 15, did you personally make any of the drawings that are contained therein?

A. Yes, I did.

Q. How many of them?

A. I platted building 15, that is made the drawing of that and platted it, but principally confined myself more or less to the outside work such as—dealt more in generalities.

Q. The work which you did for this company was confined to the manufacturing plant and the apparatus together with the works tools and office fixtures and furniture.

A. Yes, sir.

Q. Now in what manner did you secure the number of specials and valves that are shown in this inventory?

A. By actual measurement and by sketches taking off the pipe with its valves and specials in the order in which they came. Do you mean large or small pipe, we have that classified under

474 two heads.

Q. Well in either instance?

A. That will apply to both.

Q. Did you make an estimate of the number of specials in any instance or is the number of quantity shown in the inventory from an actual count made by you?

A. It was taken by the actual count.

Q. In every instance?

A. Yes, sir.

Q. When did you complete your work in connection with this inventory?

A. We secured all of the field data by the 23d of December of the same year.

Q. You secured all the data by the 23d of December 1910.

A. Yes, sir.

Q. And when did you complete the inventory as shown by Exhibit 15?

A. That was some time in the month of January, I forget now just when we did complete some of the drawings and some of the

field sketches we completed some of the drawings after we got to the Philadelphia office.

Q. Did the Des Moines Gas Company to your knowledge have any record or book in its possession which purported to be an inventory of its gas works or any part of the same for any period preceding the month of November 1910?

A. If so I never saw it.

Q. You were not furnished with any document or record purporting to be an inventory?

A. No, sir.

Q. As far as you know the company never had one in
475 its possession?

A. As far as I know.

Q. Or under its control. And when you entered upon your work in Des Moines what was the general nature of the instructions which you received in connection with your work?

A. Simply that I should make an inventory of the manufacturing plant of the Des Moines Gas Company. Having done that work before I knew of course what was expected and went right ahead with the work.

Q. Did anyone direct your work?

A. No, sir.

Q. Here in Des Moines?

A. No, sir.

Q. To whom did you report if anyone the results of your investigations from time to time?

A. I kept in touch with Mr. John Klumpp.

Q. Who is Mr. Klumpp?

A. He is engineer of the United Gas Improvement Company.

Q. Where does he reside?

A. Philadelphia.

Q. Has his office at the main office of the United Gas Improvement Company?

A. Yes, sir.

Q. In a general way what are his duties, if you know?

A. Mr. Klumpp is inspecting engineer.

Q. Do you know personally Mr. Brodnax how many gas works are either operated or controlled by the United Gas Improvement Company in the United States?

Objected to as immaterial and not proper cross-examination.

A. No, sir; I do not.

476 Q. You say you don't know?

Same objection.

A. No, sir.

Q. Was your employment in Minneapolis from the United Gas Improvement Company?

Same objection.

A. Yes, sir.

Q. And your employment in Pennsylvania, the several towns which you have enumerated?

Same objection.

A. Yes, sir.

Q. What part of your work during the past three years, Mr. Brodnax in making inventories of gas works has been for companies other that those owned or controlled by the United Gas Improvement Company?

Same objection.

A. I can't give you that sir, from the fact I don't know what companies are controlled by the United Gas Improvement Company.

Q. Have you in mind any person whom you served where your employment was not at the instance and request of the United Gas Improvement Company.

Same objection.

A. No, sir.

Q. In each and every instance during at least the past three years your employment has come from the United Gas Improvement Co.?

Same objections.

A. Yes, sir.

Q. And you have engagements in the future outside of Des Moines for that Company?

477 Same objection.

A. No.

Q. Have you any engagements made to go to Omaha or other cities after you have finished your work in Des Moines?

Same objection.

A. No, sir.

Q. You were not asked nor did you expect to place any valuation on the respective items shown in the inventory, Exhibit 15?

A. No, sir.

Q. Personally you know nothing about the time the buildings in question were constructed or when the machinery and apparatus was installed?

A. As shown in the inventory?

Q. Yes?

A. Yes, I have an idea as to when certain pieces of machinery not to my certain knowledge but from conversation showing their date of installation.

Q. Of your own personal knowledge I say you know nothing about when the buildings were constructed?

A. No.

Q. Or when the machinery was installed?

A. No.

Q. Or the other apparatus pertaining to the gas works?

A. No.

Q. You say you were assisted by five others in connection with this work?

A. Yes, sir.

Q. What duties did those other men perform with respect to this inventory?

A. Simply make sketches and took the dimensions of the
478 various buildings under my supervision?

Q. Can you give the Master an idea of the expense involved in making an inventory such as you have produced here, Exhibit 15 and the sketches and drawings shown in Exhibit 16?

Objected to as immaterial and not cross examination.

A. No, sir; I cannot.

Q. You have no idea how much. Are you paid a salary for your work?

Objected to as not proper cross examination and as immaterial.

A. Yes, a salary.

Q. By the year, an annual salary?

Same objection.

A. Yes, sir.

Q. And the five men who assisted you, are they upon salary, annual salary?

Same objection.

A. Yes, sir.

Q. The six of you were and have been in the employ of the United Gas Improvement Company?

Same objection.

A. Yes, sir.

Q. And received your salaries from that company?

Same objection.

A. Yes, sir.

Q. Did you send reports to Philadelphia, make up an inventory from day to day showing the amount of work which you did.

Same objection.

A. Yes, sir.

Q. What record is kept of that time which you put in?

479 Same objection.

A. We kept our own records, that is as far as the work goes.

Q. What is done with that record?

Same objection.

A. It is carried to the Philadelphia office and this work in that case was completed there.

Q. It was completed at the Philadelphia office?

A. Yes, sir.

Q. A copy left with the main office?

Same objection.

A. I don't know that.
Q. How many copies were you prepared, if you know?
A. I don't know that.
Q. You were only concerned in the original.
A. I was only concerned in the original.
Q. Is the original here Exhibit 15?
A. I don't know whether it is the original or not.
Q. Can you tell whether Exhibit 15 is the one which was compiled by you or is it a copy of the inventory?
A. A great many of these were made after I left Philadelphia, you see I have been away from there two months and a half nearly three months.
Q. The work was finally completed there was it not in connection with these inventories?
A. That is what I can't say sir.
Q. The sketches and drawings?
A. The drawings were.
Q. By whom were the photographs taken shown in Exhibit 16?
A. They were taken by a firm in Des Moines, Wilson & Someone, I forgot the other man's name.
480 Q. The imprint is on the photographs?
A. I think so.
Q. Did I understand you to say you used the Minneapolis building guide in mak-ng your computations of the buildings?
A. Only in that that pertained to the number of brick per superficial foot.

Redirect examination by Hon. GEORGE H. CARR:

Q. Was there anybody else that was present and taking part in making this inventory except you and your assistants?
A. There was an engineer from the City Engineer's department of Des Moines that came over probably two weeks after we began work, I don't just remember the date.
Q. From the time that he came state whethe- or not he continued to work with you until you completed taking the data?
A. Yes, sir. He had access to all of the sketches and drawings as we completed them and spent a great deal of his time over the works checking up our measurements and conferred with me very nicely on the question of differences which we found which we corrected as soon after as possible.
Q. Did he go over the work that had been done?
A. Yes, sir.
Q. Prior to the time he came upon it?
A. He did.
Q. In what manner did he go over that?
A. He went over that with steel tape and measuring rod in order to see whether our measurements were correct on the drawings that had been completed prior to the time of his coming with us.
Q. You spoke of checking up on the sketches. Just what
481 did you mean by that?
A. Check up with actual measurements. If you make

measurements and a man comes on behind and makes the same measurements he checks you on your measurements or dimensions as we call it.

Q. Checks you in what way?

A. Checks you for the possibility of error.

Q. That is the purpose?

A. That is the purpose for which checking is done.

Q. You say checked the drawings, what did he check the drawings with?

A. Checked the drawings against my own measurements on the plat in many cases and combined the figures that goes to make our totals. That represents checking.

Q. You speak of the exhibits 15 and 16 being copies of the inventory. Do I understand -hat a number of copies of the original inventory was made out and prepared?

A. I don't just know how many copies were made.

Q. There was a number made?

A. A number made.

Q. Have you examined that inventory carefully that you have before you being Exhibits 15 and 16 to know whether that is a correct inventory?

A. It is a correct inventory.

Q. You have so examined it you know it to be correct?

A. Yes, sir.

Recross-examination by R. O. BRENNAN, ESQ.:

Q. Have you checked it over with the original which you made?

A. This specific copy do you mean? No, sir; but I know
482 the work well enough to know if any change would be made in it from the original?

Q. The field notes which you took of course I presume you preserved them?

A. Preserved them yes.

Q. And have you made any comparisons between the Exhibit 15 and the field notes?

A. No, but I of course in the original, that is the original inventory which was gotten up from the field notes we were very careful in that to check back and forth.

Q. As I understand you, you had been engaged in the work of making this inventory some two weeks before a representative from the city engineer's office worked with you?

A. I think probably it was that long sir, I don't remember just the exact date.

Q. Do you remember how much data or information you had -eceived prior to the time and up to the time Mr. Maxwell came to your office?

A. That I had received what source?

Q. From investigation you had made a- the work had progressed?

A. I think probably we had the field sketches for two or three buildings. I think I know the buildings then the men were working on at the time Mr. Maxwell came with us.

Q. Is it your und-rstanding Mr. Maxwell went over the work which you had completed up to that point?

A. I had every reason to believe it. I saw him on the work and he afterwards stated to me he had gone over this work and checked it up.

Q. Did you know to what extent he had gone over it.

A. Fully I judge.

483 Q. Did you see him go over the work?

A. I did.

Q. How frequently?

A. I should say all the time, spent most of his time on the outside going over the work.

Q. With you?

A. No, sir.

Q. With whom?

A. With someone else he had gotten from the city engineer's office to hold the tape for him.

Q. Did you let him have your field notes?

A. Let him have the blue prints and he had access to the individual sketches.

Q. When were these blue prints made?

A. These blue prints made almost simultaneous with the sketches, as soon as we finished a field sketch we made a drawing of it.

Q. Sketches made in Des Moines?

A. Yes, sir.

Q. At the gas office?

A. No, sir; made at the works. A field sketch is a crude sketch from which to take the information before making it in the form of a drawing.

Q. You had been at work then about two weeks when Mr. Maxwell came there?

A. I will say two weeks.

Q. At the time Mr. Maxwell came there was it at about the time of this correspondence to which reference has been made between Mr. Haines and Mr. MacVicar?

A. I don't remember the date of that correspondence in connection with Mr. Maxwell's coming.

484 Q. Don't you know if it *is* was about that time or not?

A. No, I do not.

Q. Mr. Haines told you he had corresponded with Mr. MacVicar on the subject?

A. The papers did.

Q. Mr. Haines told you?

A. No, sir.

Q. Did you get any information from any other source than what you saw in the newspaper?

A. No, sir.

Q. It was about that time Mr. Maxwell came to the office wasn't it?

A. I don't know that sir, what stage of the correspondence he came in the office.

Q. About the first of December was it?

A. No, it must have been earlier than that. If I came here the 4th of November two weeks after would not be the first of December.

Q. Which was it? The 4th or 14th of the Month of November you entered on the work in Des Moines?

A. That was the 4th of November.

Q. Be about the 18th Mr. Maxwell came to your office?

A. Yes, sir.

Q. Looked over those sketches and you say you gave him a copy of the blue prints?

A. Gave him a copy of the blue prints, yes.

Q. It is a fact is it not that prior to your coming here as far as you know, the company had made no effort, at least had not in its possession as far as you know, or under its control anything which savored of an inventory of the gas plant or works of the Des
485 Moines Gas Company.

Objected to as a mere repetition.

Q. And do you know whether or not any one else had at any time prior to your coming here made an inventory?

Objected to as immaterial and not cross-examination.

A. To my certain knowledge no.

Q. Did you state the date upon which you completed your investigations here in Des Moines?

A. Yes, sir, the 23d of December of the same year I think was the date that I gave.

Witness excused.

486 E. P. WALTER being called on the part of the complainant and sworn and examined in chief by Hon. George H. Carr testified as follows:

Q. Please state your name, age, place of residence and occupation?

A. My name is E. P. Walter, reside Philadelphia, Pennsylvania, Thirty seven years old and I am an engineer of the United Gas & Improvement Company in the employ of the United Gas & Improvement Company.

Q. Did you have any -relimina*ty* training, any prelim*anry* course of study to fit yourself for the occupation of engineer?

A. Graduate of Lafayette Colleg*e* of Pennsylvania in civil engineering.

Q. When did you graduate?

A. 1895.

Q. Subject to graduation in a general way what business have you been engaged in?

A. In the gas business for about eight years and in the lumber business for about three years.

Q. In the gas business along what particular lines were you engaged?

A. In the distribution department of the Philadelphia gas works in Philadelphia.

Q. Have you had during that period any experience in making inventories of the dist-ibution system of gas plants?

A. Within the last two years I have.

Q. To what extent have you had experience during that period in that kind of work?

A. I have made an inventory of the distribution system of the Harrisburg Gas Works at Harrisburg, Pennsylvania, also inventory of the distribution system of Reading Pennsylvania and I
487 have assisted in working up several inventories that have been made in some other towns, Allentown and West Chester, Pennsylvania, and Syracuse, New York.

Q. Are you acquainted with the Des Moines Gas Works, that is the works of the Des Moines Gas Company in Des Moines?

A. In the distribution system.

Q. When did you first have to do with the distribution system of the Des Moines Gas Works in Des Moines?

A. About the 16th of November 1910.

Q. I now call your attention to an inventory found in Exhibits 15 and 16, and ask you whether you prepared any part of that inventory or whether you made any part of that inventory?

A. Yes, sir. I was in charge of the inventory as far as the distribution of the gas company is concerned.

Q. Did you make the part of that inventory which p-rtains to the distribution system?

A. Yes, sir.

Q. From what source did you obtain the data for the making of that inventory?

A. From the records of the Des Moines Gas Company.

Q. Anything else?

A. Also from a canvass, partial canvass of the town in relation to the services and let-ers.

Q. When did you come to Des Moines for the purpose of obtaining information for the purpose of making that inventory?

A. I came to Des Moines on the 14th of November.

Q. Of what year?

A. 1910.

Q. And did you immediately set about the work of making the inventory?

A. No, sir; I started on the inventory November 16th.
488 Q. November 16, 1910.
A. 1810.

Q. When did you complete, on what date did you complete the gathering of the data for the purpose of making the inventory?

A. January 21, 1911.

Q. Did you continue after you began getting this data for the purpose of making this inventory, did you continue at it steadily until you completed it?

A. Yes, sir.

Q. Did you have any assistance in doing the work?

A. Yes, I had twelve assistants part of the time, not all of the time.

Q. Aside from your assistants was there anybody else that was present part of the time or all of the time while you were taking this inventory, taking part in it?

A. I don't quite understand the question.

Q. Do you know Mr. Maxwell of the engineering depart-ent of the city of Des Moines?

A. Yes, I met him while I was here.

Q. Did he work with you or with you and your assistants during the time you were making this inventory?

A. He came and went over our work some time previous to—before we finished it altogether.

Q. Do you remember about the time when he came?

A. I think it was a few days before the Christmas holidays.

Q. To what extent did he go over the work which you had done?

A. He checked over the meter records that we had checked and he went over the service records, checked them up and after I left town I think he checked over the street main maps.

Q. That you don't personally know about?

489 A. No, sir.

Q. You speak of the distribution system. Will you please tell the Master what is included in that term as you use it?

A. In the distribution system is included all the mains of the gas company outside of the works year, all the service for supplying gas to the houses and all the meters and the work in connection with setting gas stoves, putting up lamps and in other words the work in connection with the company outside of the manufacturing plant.

COURT: Commencing at the tank?

A. Yes, from the outlet what you might call the outlet of the tank.

Q. How about tools used in connection with the distribution system?

A. I had an inventory made of all tools used by the distribution system.

Q. Is there anything else comprehended within the term like wagons or carts and horses?

A. Stable equipment might go in the distribution system, teams and wagons, bicycles and motor cars.

Q. You spoke of stoves and lamps, you didn't make any inventory of those things did you?

A. No, sir.

COURT: The stoves and lamps in th- sales room you refer to?

A. No in the distribution department. That department takes in the labor and material in the setting of the stoves and lamps and attending to the complaints of consumers.

Q. Are there lamps or lanterns that are used as part of the tools used in the distribution system, lamps like lamps that are

490 hung up in the street to give warning of excavations and all that sort of thing?

A. Yes, sir.

Q. Did you make an inventory of those things?

A. Yes, sir.

Q. Those are the lamps to which you refer then?
A. Yes, sir.
Q. But you made no inventory of the stoves and fixtures, things of that character that are kept in the stove for sale?
A. No, sir.
Q. After obtaining data for the purpose of making this inventory what did you then do, I mean with respect to preparing the inventory?
A. In starting we started with the meter route books which the company has—
Q. (Question read.) Did you then put this data together in the form of an inventory, prepare this inventory that is presented here?
A. Yes, sir.
Q. Exhibits 15 and 16.
A. Yes, sir.
Q. Now you speak of obtaining data from the records of the company. You may give that a little more fully what data or records you investigated and examined or how you did it?
A. The company had meter route books from which the meters of the consumers are read monthly. Two sets of books, one is the ordinary meter book, the other is a book of the pre payment meters and these books are routed by street and house number so as to make the reading of the meters as simple as possible. From these books we made up lists of the locations of the various meters
491 by street and by house number on the street. From these lists we compared the records that the company has of their services installed in the houses and the n-mbers on these service cards we compared with the number of the houses for which we had meters and in all cases where there was no record of the service card for a house, property for which we had a meter we made a special visit to that house to ascertain if there was service there and to get the size of the service in that house. After compl-ting these lists and getting all the data as to the service these lists were counted up to get the total number of services in the city of Des Moines. The meters were gotten from the meter books which the company keep-. which is an individual record of each meter and the number of meters was gotten by making ac-ount from these meter books.
Q. After you had prepared your inventory from the data that you obtained did you then do anything to check back or to verify your inventory by personal examination and investigation of the property on the ground?
A. In some cases, yes. I went over the town pretty thoroughly to see that the street lamps that are up various streets in different sections of the town, to see tha- they had gas in them, to see there was gas in the various parts of the town. Also I examined some of the drip rods which are at the ends of mains in various parts of town to see that there was gas in those locations. Also by going in different parts of the town in the evening I could see from the corner stores, etc., whether there was gas being used in the different parts of the town and in some few cases made a visit to the cellars to see that there was a service and a meter in the house.

Q. Did you examine any excavations over these connections?

A. I did see a few in the contral part of the town.

492 Q. Now as to the mains, where did you get your data for the purpose of making an inventory of the mains?

A. The gas company has maps showing the different size mains on all the streets in the town of Des Moines. After making our inventory of the services these maps were sealed in order to get the length of mains on the various streets and the services as we had gotten them in the various blocks were compared with the street main map to see that there was a main in the various blocks where the services were located.

COURT: Did you make a personal examination of the mains?

A. You mean in digging them up?

COURT: No I don't mean that, personal examination of the streets.

A. I said I have made a personal examination in trying street lamps and some of the rods from the drips, and so forth, to see that there was gas at those locations.

Q. Is that part of the inventory which is contained in Exhibits 15 and 16 which was prepared by you and which relates to the distribution system an accurate, true and detailed inventory of that part of the property of the comp-ainant company in Des Moines?

Objected to as incompetent.

A. Yes, sir.

Q. Turning now to Volume 1, being Exhibit 15, where does the inventory of the distribution system begin?

A. The inventory of the distribution system begins on page 208.

Q. On page 209 I note some figures. Will you explain what these are?

A. On page 209 is the summary of the different sizes of gas mains giving of the total length of main in feet.

Q. For example the two and a half inch, and under there

493 how many feet?

A. There are 33,947 feet.

Q. And the next shows the three inch mains?

A. 23,301.

Q. Four inch and six inch and so on down there as shown on that page?

A. Yes, sir.

Q. And that is a correct summary of the length of the mains of the various sizes as indicated by the figures opposite the length of it?

A. Yes, sir.

Q. Just below that is the river mains. Explain to the master what you mean by river mains?

A. By river mains is meant the mains across the Des Moines river. These mains are laid underneath the bed of the river.

Q. That is from the works over to the west side is it?

A. Yes, sir. From the west side of west First street across.

Q. There are a certain number of eight inch mains as shown in the inventory?

A. There are 673 feet of eight inch main, 1,300 feet of sixteen inch main and 639 feet of 24 inch main.

COURT: They are not included in those above.

A. No, sir; they are not included in the ones above.

Q. Now does your inventory show accurately where there is paving on the streets in which you have mains and the character of the paving?

A. Yes, sir.

Q. Where does that appear. I call your attention to page 210 is that where is a summary of that?

494 A. The summary is on page 210.

Q. The words character of paving, that shows the kind of paving on the street does it?

A. Yes sir.

Q. And the figures opposite show what?

A. The total number of square yards of paving of that character.

Q. On the street?

A. That is over the mains.

Q. On the street over the mains?

A. Yes, sir.

Q. Taking what width?

A. The widths vary according to the size of main. The widths are not the same over all street mains.

Q. Explain what that variation is?

A. On page 211 is a detailed statement of the paving, the asphalt paving and concrete base over the mains according to the size of paving on mains 2 and one half inches and under is 24 inches wide, the paving over ten inch mains is 28 inches, 12 inch main is 28 inches, 16 inch main 32 inches and 20 inch main is 36 inches.

COURT: I don't understand just what you mean by square yards on page 210?

A. The total number of square yards is gotten by taking the width of the t-ench over a certain sized main, multiplying that by the length in feet of the paving which the main is under and dividing by nine to reduce it to square yards.

COURT: What width do you have?

A. On a main two inches and a half and under up to eight inches, the width of paving is 24 inches.

Q. That is shown on page 211?

495 A. That is shown on page 211. On ten inch and twelve inch mains the width of paving is 28 inches. On 16 inch mains the width of paving is 32 inches, on 20 inch mains the width of paving is 36 inches. And then the next column is the total length in feet of these mains by size which are under asphalt paving. And the last column is the number of square yards of each size of main, the paving over each sized main.

Q. Is there any variation in the width of the strip that you have calculated here where the pavement is of a different character than asphalt pavement?

A. Yes.

Q. Explain that.

A. On page 211 there is wood block and concrete base. The paving over the main for wood blocks on two and a half inch main and under up to eight inch main is 32 inches wide. Ten inch main the paving is 36 inches wide, 12 inch main 36 inches wide 20 inch main 40 inches wide 24 inch main 44 inches wide.

Q. Then on page 212 it shows the same thing with respect to brick on concrete base does it?

A. Yes; the width of these trenches are the same as the width of trenches on the wood block paving.

Q. And brick on sand base on the same page?

A. That is the same as the wood block paving.

Q. Then Macadam, concrete or cement on page 213?

A. Macadam is the same as the asphalt paving and the concrete is the same as asphalt paving.

Q. Page 214 there is a summary of the character of paving, what does that show, what do the figures under the total length indicate??

A. That shows the total length in feet of the paving, the various kind over the mains irrespective of the size of the mains.

496 Q. On page 215 under the words "Line pot drips"—I wish you would first explain to the Master what you mean by line pot drips?

A. In laying gas mains or service they must, all the mains must drop towards a low point. At each one of these low points we put in what we call a drip pot, or large tub that is so made that any condensation that forms in the gas main will go to this low point in this tub and from this tub it is pumped out, the condensation.

COURT: That is drainage?

A. Drainage yes.

Q. Does there appear on this page 215 the number of those and the respective sizes?

A. Yes, sir.

Q. Under the word "number" is shown the number of the various sizes?

A. The number of the various sizes of drips on the distribution system.

Q. I find also on that page under the word valves, number and size. Will you explain to the master what you mean or what those valves are?

A. The valves are put into the distribution system to be used in case of emergency, if a main should become broken from some cause the gas can be shut off at that point?

COURT: In case of fire or something of that sort?

A. Or if the streets should become washed out, something of that kind and have a broken main, the gas can be turned off at various points without turning the gas off the whole system.

Q. There is shown in that table the number and sizes of those valves?

A. Yes, sir.

497 Q. Turning to page 216 we have street mains under steam railroads 191 crossings. What does that show or what is the fact with regard to those?

A. That 191 crossings are the number of places in Des Moines in which the gas mains are run under railroad crossings, railroad tracks.

Q. That is steam railroads?

A. Steam railroad tracks.

Q. On the same page gas mains under street car tracks?

A. There are two items, one 227 single track crossings. There are 277 locations in Des Moines where the gas mains pass under single trolley tracks. The 109 double track crossings are 109 locations where the gas mains cross under double trolley tracks.

Q. On page 217 we find the words average length for seven years 80 feet, 17,170 services. Explain what that item is?

A. The 17,170 services are the number of services we find by making an inventory in the city of Des Moines. The average length as taken from the records of the Des Moines Gas Company for a period of seven years shows the service to be 80 feet long or the distance from the main in the street to the end of the service which is a few inches within the cellar wall of the house is eighty feet long.

Q. In going over and examining the property on the ground did you make some investigation and examination for the purpose of seeing whether that was accurate as to the length of these services?

A. Yes, sir.

498 Q. And what did you find the fact to be?

A. That that was practically correct.

Q. I notice further down the page the figures 19,742 meters. What does that show?

A. That is the total number of meters owned by the Des Moines Gas Company at the time the inventory was made.

Q. Are those meters all in service?

A. No, sir. Part of them are in store room available for service.

Q. Do you remember how many?

A. I think the inventory shows it. I am mistaken there Judge, the total number of meters in use is 19,742.

Q. Then in addition to that there are some meters that were not in use that you have inventoried some place else?

A. Yes, sir.

Q. These 19,742 meters were actually in service, in use at the time you made the inventory?

A. Yes, sir.

COURT: How does it come there are more meters than there is service?

A. In a great many buildings there are anywhere from two or three to twelve, fifteen and twenty, sometimes thirty meters in large office buildings. A great many apartment houses with two or three or four meters with one service.

COURT: Services then are simply in relation to buildings and not to the persons?

A. Yes, sir.

COURT: In an office building or apartment building where there is more than — occupant taking gas, is there ordinarily but one service pipe, that is one pipe from the main to the building?

499 A. Ordinarily there is but one service pipe.

Q. That one pipe serves all occupants of the building?

A. Yes, sir.

Q. But each consumer has his own particular meter?

A. Yes, sir.

COURT: The pipe you run into the building that is owned by the company?

A. Yes, sir.

COURT: The balance of the pipe is owned by the owner of the house?

A. Yes, sir; the balance of the pipe in most cases is put in at the time the building is being built, that is put in by the owner of the building.

Q. Isn't it true in all cases the owner of the building puts them in?

A. Some cases it is not. All houses are not piped, they are as a rule, but pipes in the house always belong to the consumer or owner of the building.

Q. Explaining a little further as to the question of meters, I will ask you what part of the pipe does the company own as it enters the building, that is up to the meter, and the meter, to whom does that belong or by whom is it furnished?

Objected to as incompetent, the witness not showing himself competent.

A. The house riser in the building is supposed to come down to the front wall or wall nearest the street on which there is a gas main. The company runs the service to the house and connects up the meter to the house riser and all pipe from the bottom of the house riser back to the street belong to the gas company.

Q. Then if I understand you the company owns the pipe to the meter and the meter?

500 A. Yes, sir.

Q. And then the householder furnishes and owns the pipe from the meter that distributes the gas over the house?

A. Yes, sir.

Q. Now I will ask you to explain these items on page 218 of the inventory service, lamps and posts?

A. On 218, the average length of the lamp service is 18 feet. The average length computed from one half the main the width of the paved streets containing lamp service, plus two feet the distance the posts stand back from the curbing. In other words the lamp service only runs from the main to the curb and would not necessarily be as long as the house service and the average width of the streets in Des Moines is sixteen feet plus the two feet that the lamp post sits back from the curb makes the average length of service or eighteen feet for the lamp service.

COURT: How do you get at the average?

A. In getting the paving, the different kinds of paving on the streets in the city of Des Moines that we got from the city engineer's office and at the same time we got the width of the streets between curbs from the city engineer's office and we averaged the distance up.

COURT: The streets average thirty six feet between curbs?

A. The street would average 32 feet between the curbs. The average length of the service would be the half of the width of the street plus the two feet that the lamp post is back from the curb line.

COURT: The mains run in the center of the street?

A. The mains in a majority of cases run on the side of the street but in two services one service run on the short side of the
501 street and one service to the long side of the street the average of the two would be half the width of the street.

Q. That is to the lot line you mean?

A. No, to the curb line. This is lamp service which only goes to the curb line.

Q. The figure 1137 shows the number of that kind of services?

A. Shows the number of lamp services in use at tha ttime.

Q. And the number three there?

A. Show the number of services which have been in use and which are out of use at that time.

COURT: This is service to the city?

A. This was lamp service, street lamps only.

Q. On page 219 there is a summary, just what do those figures mean?

A. Page 219 shows the summary of the paving over the service.

Q. Of the various kinds?

A. Shows the various kind- of paving and the number of square yards of each kind of paving.

Q. Is that *at* ascertained by the same method of calculation as the paving over mains was ascertained?

A. No, sir. On page 220 is a short description In running services on paved streets trench is not dug across the street. One hole five feet long by two feet wide is dug from the main in all cases. This being the only opening made for a short service. For one across the street a second hole five feet by two feet made midway between the main and curbing. This makes three openings five feet by two feet for every two services, assuming that — each service one service goes to the short side of the street and the other service to the long side of the street or an average of one openeaing
502 seven and a half feet by two feet for each service run.

Mr. BRENNAN: The witness is just quoting from the inventory?

A. Yes, this is on page 220.

Q. On page 221 character of pavement, what do those figures in these several columns represent?

A. Page 221 is a detailed list of the service under asphalt paving with concrete base showing the number of services of the various widths of street, the lineal feet of service, that is of paving over the service and the total linear feet.

Q. On page 222 what does that show?

A. It shows the detail of the number of services on streets with wood block, paved with wood block on concrete base, macadam and concrete paving.

Q. On page 223.

A. Is a detail of the service on streets paved with brick with sand base.

Q. Page 224?

A. Page 224 and 225 shows the detailed statement of the service on streets paved with brick with concrete base.

Q. What is shown on 226?

A. Page 226 shows a summary of the paving that would be cut over the service on the different kinds of paving.

Q. 227 has to do with the meters has it?

A. Yes, sir.

Q. You might explain, I see the word "light" used there. Go on and explain what these figures indicate?

A. Under the heading "ordinary meters" is three light, five light ten light, twenty light, etc. They denote the different size meters.

503 —. In what way or what regulates the size of the meters, how does that word light, what does the word "light" have to do with the size of the meters?

A. I don't know that really that has anything to do otherwise than it is a gas term, applies to a meter just a three light meter. The different sized meters, the difference in the sizes depends on the capacity. It is just a gas term used in connection with the meter.

Q. What governs the size of the meters or de-ermines the size of the meters.

COURT: In other words, I suppo-e he means how do you tell what sized meter to put in?

A. Each different size meter has a different capacity, the three light meter I think h-s a capacity of passing about forty five feet of gas an hour.

Q. Let me ask you this, in putting in a meter for a customer do you use the size of meter with some respect to the number of burners he wants to be served?

A. Yes, sir.

Q. Whether he wants a meter for three burners or whether he wants to use ten burners.

A. Yes, sir. It is decided entirely upon what he is going to use, the n-mber of burners, whether he is going to have a gas stove or water heater or something of that kind.

Q. In other words, you put a meter in there and you use that size of meter which will take care of the gas which a particular customer expects to use?

A. Yes, sir.

Q. What is a meter for?

A. Measuring gas consumed.

Q. Prepayment meters I see down the page there. What

504 are prepayment meters?

A. A prepayment meter has an attachment on the outside of the meter by which a quarter is dropped in it and moves a small dial on the inside of the meter so that you can get 25 cents' worth of gas. In other words, the consumer has to pay for the gas before he gets it.

COURT: Nick*le* in the slot is it?

A. Yes, nick*le* in the slot.

Q. Those figures opposite show the number of each of the respective kind of meters in use as I understand it?

A. Yes, sir.

Q. On page 228 you seem to have some more d-tail- as to meters, what is that?

A. On page 288 are the meters in the store room which are available for use.

Q. Which were not in use at the time you took this inventory?

A. Yes, sir.

COURT: 853 all told not in use.

A. Yes, sir; not in use.

Q. And at the bottom of the page is a summary of the meters in use and meters out of use and the total number of meters owned by the company.

A. Yes, sir.

Q. On page 229 the first item——

A. Page 229 is merely a summary of the inventory further on On page 253. This is merely a summary.

Q. On page 230?

A. On page 230 is a summary of the horses, wagons, automobiles motorcycles or in other words, stable equipment.

Q. Is there a detail of that summary?

505 A. There is a detail of that back farther, page 253.

Q. You may explain that?

A. Page 253 is an inventory of the rolling stock tools in the distribution department. By that is meant the carts of various kinds and bicycles used in the distribution department.

Q. The various tools specified there are tools that were used by the company at the time you took this inventory in connection with the distribution system?

A. Yes, sir.

Q. I didn't -ean to inquire if that was all the tools but those were tools as I understand?

A. Those were part of the tools.

Q. On page 254, explain that list?

A. On page 254 beginning on 254 is the detail list of the tools used in the distribution department in the caying of mains and services, also setting meters, tools of all descriptions.

COURT: These are for tapping mains?

A. The first tools on page 254 are for tapping mains. The last few items are plugs for putting in the ends of the mains for stopping off the gas. On page 255 that is stoppers which are used for stopping the flow of gas in the main and making repairs joining bands and used in laying mains, a band is put around the pipe so that running hot lead it will run into the joint. And the rest are the tools of various kinds used in the laying of mains and laying of the services.

Q. And that list closes on page 258?

A. Page 258. Is the end of the list for the tools used in the main and service work.

Q. That entire list of tools were of the tools that the company had for the use and necessary to be used in connectio/ with its
506 distribution system?

A. Yes, sir.

Q. The mains and service?

A. Main and service work.

Q. On page 259?

A. On page 259 is a detailed list of the tools used in the fitting and meter repaid shop. Fitting shop and meter repair shop and for the setting of meters.

Q. That list continues on till page 262?

A. To page 264.

Q. Those were tools that the company had and were using and were necessary to be used in connection with the fitting and meter repair?

A. Yes, sir.

Q. On page 265, stable equipment?

A. On page 265 is a detailed inventory of stable equipment showing number of horses, number of wagons of different kinds, sleighs dump carts, number of sets of harness.

Q. Those were owned by the company and used and necessary to be used in connection with the work connected with the distribution system?

A. Distribution department, yes.

Q. Did you prepare or cause to be prepared some maps in connection with the inventory of the distribution system?

A. Yes, sir.

Q. I first call your attention to plate 29 I think it is in volume 2 of the inventory. Please explain to the Master what that is.

A. Plate 29 in volume two is a photographic map of a map of the city of Des Moines on which is shown in colors the various kinds of paving on the different streets of the city.

507 Q. Is there a key that shows what these various colors indicate and represent?

A. Yes, sir. In the upper right hand corner is a key explanatory of the different colors in regard to the different kinds of paving.

Q. And to what scale is that map drawn?

A. The scale of this map is approximately 300 feet to the inch.

Q. Did you have prepared a map that showed the condition of the mains, gas mains as they were in 1886?

A. Yes, sir.

Q. What is that?

A. Plate 30 is a map showing the location of the gas mains in the city of Des Moines in 1886. This map shows merely the location of the mains not the size of the mains.

Q. Is that as accurate as it could be made on a map of so small a scale?

A. Yes, sir. It is as accurate as can be made and as accurate as

it could be gotten from the records in the possession of the company at that time.

Objected to as incompetent and move to strike out the answer as stating a conclusion of the witness.

Q. Plate 31, what does that show?

A. Plate 31 is a map showing the location of the gas mains in the city of Des Moines at the time the inventory was taken irrespective of the size of the mains, just showing the streets on which the mains are.

Q. On that map I see a round heavy black character, what is that?

A. That indicated the location of the manufacturing plant.

Q. What is plate 32?

A. Plate 32 is a map indicating the soil in the various
508 sections of the city of Des Moines.

Q. By whom was that map prepared?

A. I prepared this map from information furnished to me principally by Mr. Henry Maule.

Q. Who is Henry Maule?

A. Henry Maule is main foreman in the Des Moines Gas Company.

Q. Do you know how long he has been in the s-rvice of the company?

A. Not exactly. I would say about twenty five or six years.

Q. Has he been the main foreman as you understand it during that time?

Objected to as incompetent, irrelevant and immaterial.

A. I believe he has.

Q. Is there a key to this map that shows or indicates the kind of soil as shown on the map?

A. Yes, sir. In the upper right hand corner is a key, the various colors shown on the map and opposite of them is a description of the kind of soil.

Q. I will ask you Mr. Walter, whether this inventory exhibits 15 and 16 or rather that part of it which was prepared by you to show the distribution system of the Des Moines Gas Company is a true and accurate inventory of that system showing accurately and correctly the number of miles of main, the sizes of the various mains, the location of the mains, the parts of the system that is laid under pavement and the kind of pavement, the number and character of services and the number and character of meters and of the distribution tools of the company and of the various other matters to which the inventory relates.

Objected to as incompetent and for the further reason that it asks for a conclusion of the witness.

509 A. Yes, sir.

Q. Did you prepare or have prepared under your supervision a large map of the city of Des Moines of sufficiently large scale to show the size of the mains of the system, so that coulr be shown on the map?

A. Yes, sir.

Q. Is that map prepared in two sections?

A. Yes, sir.

Q. What are those?

A. One section of it shows the eastern side of Des Moines and the other is the western half, west of the Des Moines river and the other side east of the Des Moines river.

Q. I now hand you a map marked Exhibit No. 17 and ask you to state what that is?

A. This is a map of the eastern half of the city of Des Moines.

Q. I also hand you a map marked Exhibit No. 18 and ask you to state what that is?

A. This is a map of the western half of Des Moines. Exhibit 17 is wholly on the east side with a little bit south of the Des Moines river and south of the Raccoon river.

Q. I think you have stated these maps were prepared by you?

A. Under my supervision, yes.

Q. Are these maps which we produce here the original copies or are they photographic reproductions of the original tracings?

A. This is a photographic reproduction of the original tracing.

Q. At the bottom of this map *I* think appears your signature?

A. Yes, sir.

Q. That was on the original tracing and reproduced on this photograph?

A. Yes, sir.

510 Q. Is this an exact photographic reproduction of the original tracing as prepared by you?

A. Yes, sir.

Q. I wish you would state whether that map shows the main system of the Des Moines Gas Company in Des Moines, showing the various sizes of mains as laid in the city at the time you took this inventory?

A. Yes, it does.

Q. Explain how those sizes are indicated upon the maps?

A. All mains as there drawn or indicated by the figures on the mains or on the line of the main. In the case of a four inch main is a four inch broken line with a four on this line at various places. For a six inch main is a dot and a dash with a six along the line of the main. A three inch main is a solid line with three on the line of the main and each sized main is designated with a figure upon the main.

Q. Then do I understand that the size of each main is indicated not only by figures, but by the character of the line?

A. Yes, sir.

Q. And is there a key on this map that shows that?

A. Yes, on the bottom of the map is a key indicating the various sizes of the mains, showing the character of the line and the size of the main is in front of that line on the key.

Q. I notice in your key Mr. Walters, you have the same kind of a line do you not indicating different sizes of mains, for example your key seems to show an unbroken line to three, 8 and 16.

A. Yes, sir.

Q. Explain that will you.

A. The line of this map is the same, but the figure on the
511 lines indicate the size of the main in each case.

Q. Then it is not exactly correct to state that lines in all cases indicate the size of the main?

A. The lines by themselves will not indicate the size of the main in all cases.

Q. Was that because of the difficulty of showing that by a line showing so many different sizes?

A. On the tracing the mains are shown in colors, the different sizes are in colors. On the photographic reproduction the colors will not reproduce so we have to use the figures on them as well as the different character of the line.

Q. Now as I understand what you have said with respect to what is shown on these maps, Exhibits 17 and 18 relate to both of them.

A. Yes, sir.

Q. These maps are not maps of the entire city as I understand it, but only of the parts of the city which is covered by mains?

A. Yes, sir.

Q. Or to which the mains extend?

A. Yes, sir.

Cross-examination by R. G. BRENNAN, Esq.:

Q. Mr. Walter, you were in the lumber business you say for about three years?

A. Yes, sir.

Q. During what three years were you engaged in the lumber business?

A. 1904, '5 and '6.

Q. What years were the eight years which you have been in the gas business?

512 A. From the spring of 1898 until January 31, 1904, and from the first of October 1909, up to the present time.

Q. There was an interruption of three years in your career devoted to other lines of business?

A. Yes, sir.

Q. About how many inventories of these di-tribution systems have you prepared?

A. I have had charge of making up two complete inventories outside of the city of Des Moines.

Q. One of these was Reading Pennsylvania?

A. Yes, sir.

Q. How large a plant has Reading?

A. Reading has a population of about 85,000 people, about 16,000 meters.

Q. About how many miles of mains?

A. I am not sure I think it is about ninety.

Q. Have they more than one maunfacturing plant or is it a central station the same as Des Moines?

A. The same as Des Moines.

Q. The other town was Harrisburg?
A. Yes, sir.
Q. How large a plant is in Harrisburg, or was at the time you made the inventory?
A. Harrisburg is about the same size as Reading.
Q. About the same sized plant?
A. About the same sized plant.
Q. Same number of miles of main?
A. I think so.
Q. When did you prepare the inventory for the Reading plant?
A. In April and May 1910.
513 Q. And when did you prepare the inventory of the Harrisburg plant?
A. March and April of 1910.
Q. So that prior to the year 1910 you had not personally supervised the compilation of the inventory of a gas works?
A. No, sir.
Q. Of the distribution system?
A. No, sir.
Q. You are in the employ of the United Gas I-provement Company?
A. Yes, sir.
Q. And have been for how long ?
A. For practically -wo years now and previous to that time six.
Q. Eight years in all?
A. Eight years in all.
Q. You are now working at an annual salary as compensation for your services?

Objected to as immaterial.

A. Yes, sir.
Q. When you came to Des Moines you may state at whose instance and r*quest you came here?

Objected to as immaterial.

A. I received instructions from Philadelphia to report to Mr. Haines in Des Moines.
Q. Where were you when you received instructions to come to Des Moines?

Same objection.

A. Hammond, Indiana.
Q. About what time was it you received your instructions to come to Des Moines?
A. The 11th of November I think it was 1910.
514 Q. You spoke of some 12 assistants, were they upon the ground when you got here?
A. No, sir.
Q. They came after you did?
A. Yes, sir.

Q. Had anyone prepared any record or data for you prior to your arrival in Des Moines so far as you know?

A. No, sir.

Q. Have you been in the city of Des Moines prior to the month of November 1910.

A. No, sir.

Q. It was your first visit to the city?

A. My first visit.

Q. And you came here at the instance and request of the United Gas Improvement Company your employer?

A. Yes, sir.

Q. And the general nature of your instructions was to prepare an inventory of the distribution system of the Des Moines Gas Company wasn't it?

A. My instructions were merely to report to Mr. Haines.

Q. Just to report to Mr. Haines?

A. Yes, sir.

Q. Did the letter indicate anything of the nature of your interview with Mr. Haines or what would be expected of you in Des Moines?

A. No, sir.

Q. When you reported to Mr. Haines what instructions did you receive from him.

A. I received instructions that he wished me to make an examination of his fitting shop.

515 Q. Of his fitting shop?

A. Yes, sir.

Q. Anything else?

A. No, sir.

Q. And just what part of the distribution system is the fitting shop?

A. The fitting shop or fitting department is the department that sets the meters, puts in and sets gas stoves, tends to consumers' complaints, does all the work in the house.

Q. Well did you act within the scope of Mr. Haines' request?

A. Yes, sir.

Q. And when was it that you took up the general work of the general distribution system?

A. The inventory work you mean?

Q. Yes.

A. Two days after that.

Q. And at whose request?

A. Mr. Haines'.

Q. Did you report to anyone the extent or result of your investigation in Des Moines and if so to whom, do you recall?

Objected to as immaterial.

A. Reported to Mr. Haines.

Q. Did you report to anyone else?

Same objection.

A. Reported to Mr. Klumpp.
Q. Of Philadelphia?
A. Philadelphia.
Q. Are you under his general directions?

Objected to as immaterial.

516 A. No, sir.
Q. And to whom are you subject in the matter of where you shall go and the character of the work that you shall perform?
A. To Mr. H. S. Battin.
Q. Where does he reside?
A. Philadelphia.
Q. Is he connected with the United Gas Improvement Company?
A. Yes, sir.
Q. In what capacity?
A. I don't know just what his title is, he is in the engineer of works' department.
Q. Did you receive any directions or instructions from him before you came here or after you arrived in Des Moines to enter upon your work?
A. No, sir; except I received instructions from him to report to Mr. Haines in Des Moines.
Q. And after you entered upon your work here you sent reports to him in Philadelphia from time to time?
A. No, sir.
Q. You sent him no reports?
A. No, sir.
Q. You did send reports to the Philadelphia office didn't you?
A. No, sir; I didn't send any reports in to the Philadelphia office.
Q. Had no correspondence with the Philadelphia office concerning your work here or character of the work?
A. I don't think I corresponded with the Philadelphia office at all after I arrived here.
Q. Did they correspond with you?
A. No, sir; Mr. Klumpp was on the ground at various times.
Q. Here in Des Moines?
517 A. Yes, sir.
Q. Directing the work?
A. Yes, sir.
Q. Making suggestions?
A. Yes, sir.
Q. You followed the suggestions that he made?
A. Yes, sir.
Q. You were furnished I take it by Mr. Haines with some records and data of the distribution system?
A. The records as they are in the office.
Q. Do they have in the office a record showing the number of miles of main laid in the year in which they purport to have been laid?
A. Yes, sir.

Q. And the data when laid?
A. Yes, sir.
Q. You saw those records?
A. Yes, sir.
Q. Do you recollect now Mr. Walter how far back those records go?
A. I think those records go back, I don't recollect exactly somewheres in the '80's I think, '89 or '88 somewhere.
Q. You have described and identified as part of Exhibit 16 a map of the distribution system or a part of it for the year 1886? Did you make that map personally?
A. Yes, sir.
Q. From which that was photographed?
A. Yes, sir.
Q. You made the original tracing?
A. I did.

518 Q. I wish you would tell the Master from what source you received the information or data from which you made the map referred to in Exhibit 16?

A. I took this copy of one of these maps and from the records of the gas company marked off all the mains that had been laid by the gas company back to that time.
Q. Then you had in your possession and for your inspection the record in the gas office showing the names that were laid as far back as 1886?
A. Yes, I think it was.
Q. Do you recall having seen a record of mains laid prior to 1886?
A. No, sir.
Q. And from 1886 down to November 1910 you recall having inspected the records showing the mains and pipes laid in the streets of the city covering that series of years?
A. Yes, sir.
Q. And services?
A. Yes, sir.
Q. Number of meters?
A. I did.
Q. Covering that period, the time to which your attention has been called from 1886 to November 1910?
A. The services I could not say when they were put in whether prior to 1886 or since then.
Q. Did you see a record showing services prior to the year 1886?
A. No, sir.
Q. Did you see a record showing the number of meters installed in the city of Des Moines prior to 1886?
A. No, sir.

519 Q. Were you furnished with any information, records or data of the distribution system of the Capital City Gas Light Company or Des Moines Gas Company or any of its predecessors prior to the year 1886?

A. No, sir.

Q. And the inventory or so much of it as you supervised or compiled was made up from the records furnished you at the gas office for the years subsequent to or including 1886?

A. Yes, sir.

Q. Were you furnished by the gas company or by Mr. Haines any records showing the years in which the pavements referred to were laid?

A. No, sir.

Q. Did you attempt to ascertain when they were laid?

A. No, sir.

Q. So that you have no knowledge on that subject?

A. No, sir.

Q. In making an inventory of the distribution system of the gas works are there any specials used in connection with the mains and pipes and service connection?

A. Yes, sir.

Q. And what in a general way is the character of such specials?

A. As the ones that are shown in the inventory?

Q. Yes.

A. The valves and the drips.

Q. Anything else?

A. There are other specials used in the laying of mains, but they are not taken into the inventory.

Q. They are not referred to in the inventory?

A. No, sir.

Q. And the quantities or list of specials shown in the in-
520 ventory Exhibit 16, are they based upon actual count or upon estimate?

A. They are based upon the records of the gas company.

Q. So that so far as the inventory shows specials they are merely copies of what the records show in the gas company's office?

A. Yes, sir.

Q. And that is true as to the number of miles of mains is it not? So far as you are concerned, you have no personal knowledge of the existence of the mains in the streets?

A. Yes, I have.

Q. You have?

A. Yes, sir.

Q. What investigation did you make?

A. I went over the town pretty thoroughly, tried lighting up lamp posts in various sections of the town, went to the drips on the ends of the lines of gas mains and opened them to see there was gas in them, also went around the town in the evening to some extent to see where——

Q. You have been over that. I want to know if you had made any investigations in addition to those which you have told Judge Carr about?

A. No, sir.

Q. You don't claim in other words, you personally visited every street in the city indicated by the map and satisfied yourself that

the main as shown upon that map existed in the street and that the main was of the size and character as shown on the map?

A. No, sir.

Q. You don't mean that?

A. No, sir.

Q. But you do mean you went over the city at different
521 points and made some experiments and some tests?

A. Yes, sir.

Q. As to whether the gas was ready for use at certain points in the city?

A. Yes, sir.

Q. That is what you mean? But in making up this map and this inventory you of course relied upon the data and information which you secured in the gas company's office?

A. Yes, sir.

Q. In showing upon this inventory the number of services did you visit the different houses in the city and verify that or did you simply adopt the information and records which were turned over to you by the gas company?

A. Some of my assistants I expected visited about from forty to fifty per cent of the houses in Des Moines.

Q. To verify what?

A. Services, see that the services were there in the house and the meters?

Q. And the other fifty per cent you took for granted?

A. Took them from the records of the company.

Q. Took it for granted that the records were correct?

A. Yes, sir.

Q. Was there any particular reason why you should make a personal investigation either by yourself or by your assistants to ascertain the number of service connections, any special reason.

A. For the percentage that we did go into.

Q. Yes.

A. Yes.

Q. What was the reason?

522 A. We had no record for the service at that particular location.

Q. Where was that particular location?

A. As I have described in getting up the inventory we made a list of the houses by number on the streets in which we had a meter and locations where we had no record of the service we made a visit to that house and got the size of the service and saw that it was using gas.

Q. Was that distributed all over the city or was it in one particular section of the city where you found conditions of that kind?

A. No particular section, it was all over the city.

Q. In investigating the records in the gas company's office you discovered that they had record of meters, but in some instances where there was no record of the service, is that correct?

A. Yes, sir.

Q. And where you found conditions of that kind to exist you attempted to trace the residence and to ascertain if a service was there?

A. Yes, sir.

Q. And you did that in about 50 per cent of the services as shown upon your inventory?

A. I would say about that, yes.

Q. Did you personally go in all cases or did you trust to someone else?

A. I had six assistants doing that work.

Q. You trusted to them to go as you directed them did you?

A. Well I had one assistant who was taking care of it and seeing that they were doing the work.

Q. Did you supervise it in any way personally?

A. I was not out to see that they did the work, no sir.

523 Q. Did you go to any of these houses yourself to ascertain if service connections were made to the house?

A. I did in a few houses, yes sir.

Q. You had some twelve assistants did you in all?

A. Yes, twelve in all.

Q. All twelve came from Philadelphia?

A. No, sir; two of them were from Philadelphia, ten of them were from Des Moines.

Q. All in the employ of the United Gas & Improvement Company were they?

A. At the time that they were doing the work, yes. In the employ of the Des Moines Gas Company.

Q. Yes; but you worked for the United Gas & Improvement Company in connection with the Des Moines Gas company's property, isn't that true?

A. Yes, sir.

Q. What is the average size of service connections?

A. I would say inch and a quarter.

Q. Prior to about seven years ago have you any knowledge on the subject as to what would be the average size of service pipes?

A. You mean in the city of Des Moines.

Q. Yes, or generally?

A. From an inch to inch and a quarter. I think the average would be inch and a quarter.

Q. Inch and a quarter seven years ago?

A. In the larger towns.

Q. What do you mean by the larger towns?

A. A town the size of this or larger.

Q. Do you know what they were seven years ago?

524 A. I don't know actually no sir.

Q. The service pipe in use seven years ago or prior thereto is the city of Des Moines, did you know what they were?

A. No, sir; I do not.

Q. Do the records in the gas company's office show what they were?

A. They do.

Q You don't recollect now?

A. I don't recollect it no.

Q. Now Mr. Walter, how much on Exhibit 15 and 16 represents original information secured by you from personal investigation and inspection and how much of it is represented by records and data secured in the Des Moines Gas Company's office, tell us in a general way?

Objected to as improper cross examination, calling for a conclusion of the witness.

A. It is practically all of the distributing inventory is from records of the gas company in their office.

Q. When Mr. Maxwell came over to the gas company's office you had practically finished your investigations hadn't you?

A. Yes, sir.

Q. And you were then reducing the result of your investigations to writing?

A. Yes, sir.

Q. Compiling the inventory in other words?

A. Yes, sir.

Q. Was the clerical work performed in Des Moines or in Philadelphia?

A. Merely the inventory, the data for the inventory was gotten in Des Moines.

Q. The balance of the work completed in Philadelphia?

A. Completed in Philadelphia.

525 Q. All your field notes were taken here of course?

A. Yes, sir.

Q. Did you send them to Philadelphia in advance of your going or have them with you when you went there?

A. Had most of them with me.

Q. Did you send any in advance of your going?

A. Some of them.

Q. About how much?

A. I don't remember exactly. I sent one of my assistants from Philadelphia back with some of the information before I was ready to go with the data.

Q. Was there some work performed on your data before you arrived there, some maps and charts prepared, do you remember that?

A. No, sir.

Q. Was there any tabulations made in Philadelphia before you arrived there with respect to the quantities?

A. Our rough field notes were being worked up.

Q. Did they have the number of miles of mains tabulated when you got there?

A. I don't remember.

Q. Do you know where your notes are from which this inventory was made?

A. Yes, sir.

Q. Where are they?

A. In Des Moines.

Q. Des Moines Gas Company's office?

A. Yes, sir.

Q. When were they brought here?
A. I don't know just when they got here.
Q. Since you have arrived in the city?
526 A. They were here before I arrived.
Q. I understand you, you finished up your work here in about the months of January?
A. Yes, sir.
Q. When was the inventory, so far as you were concerned, when was it completed and put in book form?
A. Some time in February.
Q. The latter part of February?
A. Latter part of February.
Q. Did you finish with your part of the work first or was it all completed together?
A. It was practically all completed together at one time.
Q. And by whom was it verified?
A. How do you mean verified?
Q. After you went to Philadelphia and after the data and information furnished by you was worked out in this form was there any attempt made by any one to verify it?
A. All the report was checked back on the original data from which we had taken that in Des Moines?
Q. No one came from Philadelphia to go over your work and attempt to verify the inventory which you made and which you submitted?
A. No, sir.
Q. You say they did not?
A. I don't think so.
Q. Are you the author of the matter which appears on page 208 of Exhibit No. 15?
A. Yes, sir.
Q. You are the author of anything that appears in the inventory from page 208 to 230 covering the distribution system were you?
A. Yes, sir.
527 Q. You had no former connection with this plant in Des Moines?
A. No, sir.
Q. The soil man to which you have called attention and which is part of Exhibit 16, did you personally make any tests as to the formations in the city of Des Moines to verify that map?
A. No, sir.
Q. Do you know anything about it except that which you were told or which was told to you?
A. No, sir.
Q. And that is true as to the map in its entirety?
A. Yes, sir.
Q. Now you speak about the lamp service of the Des Moines Gas Company, it renders no service for street lighting does it in the city of Des Moines as you understand it?
A. There are something like 1,100 street lamps in the city of Des Moines I think.
Q. What I mean, the Des Moines Gas Company is not furnish-

ing to the city of Des Moines lamp lights are they for street lighting purposes?

A. There are street lights in the city of Des Moines and those lights are gas lights.

Q. In making up your inventory just how have you treated the lamps and equipment and the service connections to the public lights?

A. On page 218 of Exhibit 15 is given the number of services, lamp services and lamp posts in use as 1,137.

Q. So that you have included in this inventory the lamp posts which you found have you?

A. Yes, sir.

528 Q. And the service connections made thereto?

A. Yes, sir.

Q. And it is shown here, page 218 a sum total of 1,140, that represents services and posts in use does it?

A. There were three of those service posts were not being used at that time. They had been in use at some previous time, but had been discontinued for some reason.

Q. I see you have shown 1,137, is that it?

A. Yes, as being in use.

Q. You have used the same average size of service pipes for the lamps as you have to the houses?

A. I merely give the average length of the lamp service, not size at all.

Q. Does the map show the size you used or adopted?

A. I don't think the maps show anything about the size.

Q. You treated the service there, used the same length which you did the other service, so it would make no difference there in your computations or compilations?

A. Merely giving the length of the service, the average length of the service and the number of the services irrespective of size.

Q. What average length did you use?

A. Eighteen feet.

Here the further hearing was adjourned until 9:30 a. m. tomorrow.

529 Wednesday Forenoon Session.

JULY 19, 1911, at 9:30 a. m.

All counsel for the respective parties present.

Testimony on part of complainant resumed as follows:

E. P. WALTER, re-called for further cross examination, examined by R. O. Brennan, Esq., testified as follows:

Q. In making up your inventory of the distribution system, did you attempt to record therein the dates upon which the mains and pipes and services were installed?

A. No, sir.

Q. Did you have any record or memoranda furnished you by the

company by which you could determine just when the mains and pipes were laid?

A. I think we could determine it from the Company's records.

Q. You were simply then concerned in making a list of the properties?

A. Detailed inventory.

Q. And the greater portion of it consisted in making an abstract of the Company's books?

A. Yes, sir.

Q. Are you able to tell us in what part of the system you found the oldest services?

A. The oldest services would be found in the oldest part of the system as shown on the map of mains in the ground in 1886.

Q. Can you tell us in a general way what part of the city that would be in?

A. That would be in the business section of the city as it is today.

Q. In East or West Des Moines?

530 A. In both. Plate 30 in Exhibit 16 would show it.

Q. Do you know how many miles of mains are shown in plate 30 of Exhibit 16?

A. About 16.

Q. About 16?

A. Yes, sir.

Q. And all of these mains shown upon this plate were installed prior to 1887?

A. Yes, sir.

The MASTER: How many miles did you say?

A. About 16.

Q. This plate 30 shown in Exhibit 16 shows the major portion of the distribution system too in West Des Moines; are you able to tell from an inspection of this plate just how many miles were in East Des Moines?

A. No, sir; I couldn't.

Q. You can't approximate that, can you?

A. It would be merely a guess, that would be all it would be; approximately three to four miles; that is merely an approximate answer to that question.

Q. Did you have a record furnished you by the Des Moines Gas Company showing the condition of its distribution system and the extent of the same in the year 1894?

A. No, sir.

Q. Have you any way of knowing now about what their distribution system was in that year, the extent of it?

A. No, sir, I have not.

Q. And all of that information was available in the office of the Gas Company?

A. Yes, sir; I should think that could be gotten at at the present time.

531 Q. How much of this distribution system extends into what is known as South Des Moines?

A. I don't know how much it would be in miles.

Q. I mean that district of the city lying south of the Raccoon River and the portion of it lying south of the Des Moines River?

Judge CARR: If I might suggest, Mr. Brennan, the maps and plates show what portion of it is there. You can determine that from the map. Exhibits 17 and 18 show the mains that are south of the river.

A. I don't know how much in feet that would be.

Q. Can you scale the map and tell us?

A. Yes, sir; but it takes time.

Q. I would like to know approximately how many miles there are on the south side of the river?

A. I don't know.

Q. I thought you had done that—does your inventory show it?

A. It shows it, but not divided off into sections.

Q. Is there any way you can take the inventory together with the map and tell us by scaling the map?

A. By scaling the map you could get it exactly.

Q. Does that take very long?

A. I should think it would take two or three hours—couple of hours.

Q. Mr. Walter, will you secure for us the extent of the distribution system of the Des Moines Gas Company in the year 1894?

A. December 31st, 1894?

Q. Yes.

Mr. GUERNSEY: I think if they want to get that information they ought to get it themselves. We offered them the facilities for it.

Mr. BRENNAN: You have these witnesses here for the pur-
532 pose of showing all these things; he has his field notes and made these investigations.

Mr. GUERNSEY: Not on this question.

The MASTER: The only point it may be material on is on the age of the mains.

Judge CARR: Our thought is, on cross examination they ought not to put the witness in the position of bringing in records to which they have access. It seems to me if they want the records, it is not the proper way of getting at it.

The MASTER: I am not sure about that. The age of the mains is material or may be material. Consequently it is information I am rather inclined to think you ought to furnish. Besides all that, all this information obtained from these records they have a right to have them produced, all of them.

Judge CARR: We do not question that. Here is the proposition: Our records are open to them. They want to put our witness in the position of hunting up what they want, doing all the work they ought to do themselves. The records are open for the-. They are now investigating the records and getting such information as they want. Our thought is that it is not proper or fair cross examination to ask the witness won't you bring me the record. If it was the only way they have of getting at it, it would be a different proposition. But the records are there. If they want to know what the main system was in a given year, the records are there. We don't think they

ought to put our witness in the position of hunting up the information for them when the source is open to them.

The MASTER: All this evidence with reference to the records, unless those records are produced and produced by you, in my
533 judgment, it is incompetent. I suggest that to you now.

Judge CARR: Do you mean the inventory in so far as the man making the inventory as made up as gotten from the record, that the inventory or list of property is incompetent, unless we bring the records referred to in every instance?

The MASTER: I am inclined to think so. An expert on the examination of the books is all proper enough, but those books must either be verified or proved, before the evidence of the expert would be competent.

Judge CARR: Take an ordinary case, a man making an inventory of a stock of goods. He brings it into court and has a list of the property. Surely you would not say that the list, if it is a correct list, is not admissible, unless he brings all the information from which he makes up that list.

The MASTER: I am talking about this record. That being true, of course you are not bound to produce those books unless you want to.

Judge CARR: We can go through all these details and bring our whole records here. We have been accused in the public press of doing a whole lot of unnecessary work and piling up costs in this case. Of course, if the city attorney had this list, as the evidence shows, for months and having had it, and at our invitation they have had men taking notes of what we were doing; all done in the hope that we could agree upon this inventory, or that we could perhaps agree upon any inaccuracies that might exist. Of course, if the attitude is that this inventory must be proved and that every item or detail from which it was prepared must be proven, we can do it.

Mr. BRENNAN: We are asking for information here that is not shown in the inventory. It shows the extent of the distribu-
534 tion system in 1886. They have seen fit to make that important. We are simply requesting them to furnish the same information with reference to the year 1894.

Judge CARR: Why not every other year?

Mr. READ: We have put a witness on the stand. That witness possesses certain information which he has disclosed and produced. The witness has prepared what we believe to be sufficient for our purpose and the purposes of this case. Now the proposition is that the witness shall go out and prepare other information that he does not now possess. The limit of the requirement of the witness is to disclose what information and knowledge he possesses. He is under no obligation and it is improper to send him out to acquire other information and make other compilations. As the Judge has said, the information which the witness would compile is open to the other side and it is certainly not required of our witnesses that they should enter upon the task of preparing what the other side may want.

Mr. BYERS: May I suggest this in that connection: this witness

in his examination in chief, when he was being qualified by counsel, stated, as I remember it, that he made those inventories, and that he was here a certain number of days and had access to all the books and records of the Gas Company and used them in preparing the several exhibits. What Mr. Brennan is asking for is exactly the same as if some witness, some expert witness or accountant was on the witness stand and was testifying to the condition of the books at a certain time, and stating that he had made a complete examination of the books and had reduced his examination to writing, and we had a part of his examination reduced to writing, and we were
535 asking for the rest of it. They say they selected such portion of the facts upon which this testimony must rest and from which you must draw your inferences, as they think they need. When we get all, at least all this witness had before him, when he made this inventory and formed his conclusion, then we will be able to say whether what he does produce is worthy of credit and is entitled to be considered of some weight in this case. For counsel to say that an expert witness who is simply going to produce his conclusions as they may appear upon the maps and inventories on direct examination, of the record, for counsel to say that they may rest upon just such portions of the record, and that we must take it whether we are satisfied with it or not, I don't think that is the rule. The witness says these other facts are where we can get them and all we ask is that he furnish them, so that we can say after we have had an opportunity, whether it is all we want to have or not.

Mr. GUERNSEY: I started some of these objections—now this witness is on the stand merely for the purpose of identifying or testifying to the accuracy of certain written evidence. The question that is presented here is not a question as to the competency of the testimony, because he is not asked to testify to anything. But the question presented here is whether this witness shall at the request of the other side undertake an examination of records which are now accessible to the other side, for the purpose of furnishing them some information which does not in any way touch the correctness of these writings he is identifying, but which they think they may desire for use at some time in the progress in this case.

536 It is not a question of whether or not we shall furnish them access to our books, because all of this week, at least, their men have been at work upon the books which contain this information and are at work there now, and we are *are* furnishing a man to help them do the work. It has occurred to me, if counsel wanted to know how many miles a map would scale south of the river, it was entirely proper for them to allow their engineers to scale it. The question presented to your honor is not whether we shall furnish them all the information they want, but whether we are bound to compile from our books the specific things they may regard as material, not for the purpose of showing whether or not this map is true, because this map don't purport to show the mains in 1894; it purports to show them to-day. We say we are not bound to do this work for them, any more than we are bound to go to

work and make a map showing exactly the condition of the paving in 1894 in Des Moines. We might say we regard that as material and make use of that map; it may cost us two or three hundred dollars. They would say to us, those records are open to you, if you want that map, go and make it. That is the question we have here; not whether they have a right to get this information, but the question is, whenever they want to get some information they don't want to take the trouble to compile it, but we shall perform the labor and compile it for them. The question I am making is that we are not bound, where we have offered them the sources of information, to go to work and compile that stuff that we do not regard material, so that they may determine whether it is material or not.

Mr. BYERS: Why shouldn't you do it in this kind of a law suit?

537 Mr. GUERNSEY: For just the same reason, if I wanted to know in what line and on what page Mr. Brodnax wanted to testify to in this record, I should say, Mr. Byers, will you look it up for me? The answer is just the same as if Gen. Byers asked me why I shouldn't pay his taxes—because I don't owe them.

The MASTER: Let me be understood. There are two questions involved in this. This witness was basing his testimony, as I understand the situation, on the size and character of the mains largely, if not entirely, collected from the records of the office——

Judge CARR: May I just say there, that the witness says he made the inventory from the records of the office, and then his testimony shows, having made the inventory—that don't mean the whole inventory—having made the inventory, then he inspected the property on the ground for the purpose of verification, so that his information did not depend entirely upon the records.

The MASTER: It did not depend entirely upon the records, but the record now is primary evidence of all these matters collected from it, and that is the best evidence, that record is the original evidence also. They have a right to have that record produced.

Mr. GUERNSEY: We are willing to produce it.

The MASTER: And identified by the witness, because he gets the length of the mains and the time they were laid and all those things from them. He has a right to have them produced. It is another proposition as to whether or not he is required to go to that record and make out a statement from it of what the condition was in 1894. But the record itself, he has a right to have produced. In

538 fact I doubt very much whether this evidence is competent without its production.

Mr. GUERNSEY: We are perfectly willing to produce it.

The MASTER: Let me go a little further and be understood. I understand an expert on books and papers, and all that, where they are not public records, but where they are private records, is simply to aid the court in reaching the facts, instead of having to go over a great many things. That is held in the case of the State vs. Brady. A compilation where the books are produced is competent. I know I have had that in the state courts before me a good many times. An expert is perfectly competent, he may make up a table

and that is competent. But the books are not here and produced; they have no opportunity to examine with reference to the books. I am speaking a little fully, because I don't want to be put in the attitude of rejecting evidence you are claiming to be competent. So I think that the record should be properly here and properly identified. He has a right to cross examine in reference to the whole of that record, because he has a right to know whether or not this information given here is correct and that it is derived from the record.

Judge CARR: You readily see that a set of records covering many years and many miles of mains—182—all laid since 1886, except about sixteen miles, your honor will readily comprehend how voluminous those records are. With the very thought your honor has in mind, we tried to conduct matters in such a way as to avoid making a vast record in this case. Therefore I again advert to the fact that as long ago as March we furnished at the request of Mr.
539 Brennan a list of our property and invited them and continually invited them to inspect the record. It has seemed to us that we could obviate the difficulty your honor has in mind, if they had access to the property and inventory, that we might be able in the end to cut down a great deal of the record in this case. That has been our attitude all through.

The MASTER: I understand that.

Mr. GUERNSEY: We don't want that statement on the record here to remain there without being explained, that we have been in possession of the records since the first of last March. We have had the inventory, Exhibit 15, but the plates and maps referred to in Exhibit 16, we did not have. We were furnished a copy of what purports to be Exhibit 17 some two or three days ago.

The MASTER: I doubt very much whether you can require the witness to go to work for two or three days and do those things. But you do have the right to have that record produced; you have the right to ask the witness to produce the *the* record.

Judge CARR: We stand ready at any time to do that.

Mr. BRENNAN: We want an opportunity to cross examine this witness with reference to the records which he has attempted to identify in this court. If he has among other things seen fit to incorporate a map showing the distribution in 1886, we think it material to inquire of him with respect to the system in 1894. We would like to have the witness tabulate that. If it takes two or three days, let him bring in the books. It occurs to us surely, that the amount of extensions made in 1894 could not have been so great, but what they could readily furnish us that informa-
540 tion.

The MASTER: You bring me the authority requiring a witness to go to work and look up a lot of things. But those records are here and you have a right to cross examine this witness.

Mr. BRENNAN: What we are asking for is information with respect to the extent of the distribution in 1894.

Mr. GUERNSEY: I suppose Mr. Walter is probably the only man who knows just what books he used; so that we had better send

him over to the office with somebody now and let him bring over all the books he used as to this inventory.

Mr. BYERS: We stand on the record. They can bring what they please. We will stand on the record.

Judge CARR: We think in view of the attitude and in view of this situation we can get along better if we will just send and get those records and bring them up. We are willing to have this witness go and get them in view of the whole situation here.

The MASTER: Can't we go on with the witness?

Mr. GUERNSEY: It will be claimed they ought to have been here while he was on the stand.

The MASTER: Well, if the witness is willing to do it. Let him answer the last question.

(The last question put to the witness was as follows:)

Q. Mr. Walter, will you secure for us the extent of the distribution system of the Des Moines Gas Company in the year 1894?

A. I can produce the records of the Gas Company for the mains in use by the Company, December 31, 1894.

Q. The same records which you had at the time you made up the inventory Exhibits 15 and 16?

A. Yes, sir; the records from which they were made.

Q. At whose instance and request did you incorporate in
541 the inventory the map of the distribution system for the year 1886?

Objected to on part of complainant as immaterial.

A. I don't know that I know. I don't think I can say at any special person's request.

Q. Did you receive that direction from any one with reference to that year?

A. My understanding is the United Gas & Improvement Company first had possession of the gas works in the city of Des Moines in 1886.

Q. You were instructed to show in your inventory the extent of the distribution in that year?

A. Previous and about that time the Des Moines Gas Company took possession.

Q. You say they came into possession in 1886, that is your understanding?

—. ——.

A. You were instructed by some one in authority to show in your inventory the extent of the distribution system in the year '86?

A. Yes, sir.

Q. And you have obeyed those instructions?

A. As far as possible.

Q. And have illustrated that by this plat, number 30 in Exhibit 16?

A. Yes, sir.

Judge CARR: Now, if the court, please, it seems to me we cannot

conduct this orderly and better than to let this witness get these records.

The MASTER: I don't want to take up a lot of time here. Have you any other witness you can use?

Judge CARR: We have other witnesses, but we cannot very well go on until we get through with this witness.

The MASTER: Have you any further cross examination?

542 Mr. BRENNAN: I might further cross examine the witness with reference to the record of 1894.

The MASTER: How long will it take you to produce the records?

Judge CARR: Possibly about an hour.

The MASTER: That is an hour wasted.

(Witness excused pending the production of the records).

HENRY MOUL, being first duly sworn on part of complain-

543 ant, examined in chief by Judge Geo. H. Carr, testified as follows:

Q. State your name, age, place of residence and occupation.

A. Henry Moul; residence 515 East Fifth Street, Des Moines, Iowa; I am in my fifty-ninth year; I am foreman of the distribution department of the Des Moines Gas Company.

Q. How long have you resided in Des Moines?

A. I have been in Des Moines since 1885.

Q. How long have you been in the employ of the Des Moines Gas Company and its predecessor, the Capital City Gas & Light Company?

A. I commenced my connection with the Gas Company in the fall of 1886; the 25th of October.

Q. In what capacity?

A. Well, I was a common laborer.

Q. And how long did you continue to work for the Company in that capacity?

A. About three years, I believe; no four years.

Q. What particular line of work were you doing?

A. Construction work, the extension of mains and new service work.

Q. And after the three years then what position did you take in *in* the employ of the Company?

A. I was promoted to the foremanship of the department.

Q. Explain to the court what your duties were as such foreman.

A. My duties was to see that all mains were laid properly and all new service connections were made from the street to the consumers, and all complaints taken care of, and all outside work pertaining to the Gas Company.

Q. Then it was in about 1889 that you became such foreman and assumed the duties you have described?

544 A. I think it was on the 5th day of May 1889, and it might have been possibly 1890; I ain't positive about the year.

Q. Now since that time have you continuously held the position and performed the duties of foreman?

A. Yes, sir.

Q. To what extent has your time been devoted without interruption to the performance of your duties?

A. The first fifteen years I was with this Company, I was not outside of the city limits. My attention was wholly and solely both day and night and Sundays given to the work. Since that time I have possibly been off in the neighborhood of ten weeks different years.

Q. You say off, taking rest?

A. A short time.

Q. On how many occasions have you been away from the work; you say it aggregates about ten weeks?

A. I can tell you exactly, just give me a minute to think now. In the year 1904 I was off five weeks; in 1905 I was off three weeks; in 1907 I was off two weeks; in 1910 I was off one week.

Q. Now, have you been off of work from sickness or any other cause than the ones, the periods you have mentioned?

A. Once.

Q. How long was that?

A. Well, I didn't attend to very much business for four days. I was out on the work every day.

Q. You was a little off of feed for about four days, but still supervising the work?

A. I was crippled up a little bit.

Q. Have you now given all the time that you have been away from the work since you assumed the duty of foreman as you
545 have stated?

A. Practically, yes.

Q. When you were away from the work for a week or ten days, these different intervals you have spoken of, was the work of laying mains and extensions and services going on?

A. Yes, sir.

Q. During your absence?

A. Yes, sir.

Q. When you returned, what if anything did you do for the purpose of advising yourself of just what had been done during your absence?

A. I went over the work thoroughly, made a sketch of it, what was completed I turned into the office, and what was uncompleted I finished after my return.

Q. Did you advise yourself on an inspection of the work done during your absence, so that you have a personal knowledge what mains were laid, the size of the mains and where they were laid during those short intervals you were away?

A. Yes, sir.

Q. During the balance of this long period, has there been any mains laid or any work done on the mains in the city of Des Moines with which you are not familiar from personal knowledge?

A. No, sir.

Q. I wish you would tell the court in a general way to what extent you are familiar with the main or distribution system of the company, including services and the mains laid in the streets and stating and covering by your answer whether you are familiar with the streets upon which the mains are laid and the size of the mains on the various streets?

A. I don't know whether I can use language to fit in there or not. It is my duty—when I was first promoted foreman, it
546 was my duty to see all the mains taken care of and all new services and house connections, and my attention was given to that invariably. I have made it a habit to keep an accurate record of everything being done, new work or repairs. When I commenced here the system was very small and I had an opportunity to repair all the mains that were in the system at my beginning, and I have had supervision over all new mains that has been laid since that time; that applies practically to the new service work, with the exception of possibly one year, I had but very little to do with that work for one year, 1909; but outside of that I gave my personal attention to the extensions and new service work and repairs.

The MASTER: Do you know about the service, all of it now?

A. Practically, yes sir.

Q. I will call your attention to a map which is found in Exhibit #16, and which is designated as plate 30, location of gas mains in 1886, and ask you to examine that. (Witness examines map.) Have you now made an examination of that map or plate?

A. Yes, sir.

Q. State to the court whether that plate or map is a substantially accurate map of the main system in Des Moines at the close of the year 1886, in so far as it can be shown on a map of that size?

Objected to on part of defendants as incompetent, immaterial and not the best evidence of what the witness has already said.

A. Well, it is practically correct. There might be a few small corrections, but it is practically correct.

Q. Let me ask you if you could from memory, without the aid of a map, state just what streets in the city of Des Moines the
547 mains were laid on at the close of the year 1886?

A. I think so.

Q. Well, now, in view of the objection made, you may go on and state to the Master from recollection the mains on the streets as they were in 1886, giving the size of the main, if you remember, and just where on the streets they were laid.

Defendants interpose the same objection as last above.

Q. You may confine your answer first to one side of the river, either side you may desire to take up first.

A. On the east side of the river, starting at the present works, there was a 14" line going to Court Avenue; east on Court Avenue it was 8 inch as far as Fifth; 3 inches as far as Sixth; 3 inch south on Fifth street as far as the Rock Island Railroad; north on Fifth

street was 8 inch and east on Walnut was 6 inch, as far as the Capitol or Eleventh street. Now we will take Locust street from First to Ninth, 4 inch, part way, and then part way 3 inch.

The MASTER: Where is that with reference to the Capitol.

A. Ninth street is west of the Capitol. On Grand Avenue there was at that time a 3 inch from East First Street to Fourteenth.

The MASTER: Did you give Walnut?

A. Yes, Walnut west from Fifth to First was 4 inch; there was a 2 inch on Second street between Court Avenue and Walnut, and East First Street from Court Avenue to Locust 4 inch; from Locust to Grand 3 inch. I am giving the size of these as they were at that time, not at present.

Q. Now, how far east did you say the main was laid on Walnut street?

A. Right south of the Capitol, Eleventh street; finishing with that year we ran to Fourteenth at the last end of '86.

Q. Was there anything north of Grand Avenue on the east side?

548 A. On Fifth street.

Q. You gave that.

A. No, I hadn't got to it. That is a 3 inch from Grand Avenue to Maple; that is, it was at that time. Now, in the latter part of that year, the beginning of my time, we laid a piece on Court Avenue from Sixth street to Twelfth street; in connection with that they laid some spurs of small pipe south from Court Avenue on Sixth, Seventh, Eighth, Ninth, Tenth and Eleventh. Then there was a little piece in on Seventh street from Walnut to Locust. There was a piece in on East Sixth Street from Walnut to Grand. There was a piece of 6 inch on Sixth street from Walnut to Locust. That is all on the east side.

Q. Now, let me ask you, after the mains were laid at the close of the year 1886, on Court Avenue, do you remember distinctly where the main was laid out on Court Avenue as far as Fourteenth Street during the year 1886?

A. No, sir, on Twelfth.

Q. Was it laid as far as Twelfth?

A. Yes, sir; at the close of that year; it was froze up when they were putting in the last end of it.

Q. Do you recall distinctly whether that was before or after the first of January the work was completed?

A. I couldn't say, it was right in the beginning of my time; I know it was cold weather.

Q. The works at that time was on the same general location they are now?

A. Yes, sir.

Q. Beginning with the works and going to the west side, describe what mains there were at the close of the year '86?

A. Two 10 inch lines, one beginning on east First Street,

549 right south of the Wabash Railway; there was another one from the Court Avenue bridge to First street. Then there is an 8 inch line going north from First street from south of the

Wabash to Locust. There was a 6 inch on Court Avenue from First Street to Fifth. Then on Walnut street there was a 3 inch from First to Second; an 8 inch from Second to Eighth. On Locust street there was an 8 inch from First to Second, and 3 inch from Second to Fourth, and 4 inch from Fourth—I think that 4 inch goes as far as Twelfth street; and then there was a piece of 3 inch in up to where Clarkson used to live, this side of Fifteenth street. On Grand Avenue was a part of a three inch between Fourth and Fifth; and then from Seventh to Ninth was a six; from Seventh to—well Hubbell's place it is now—it was B. F. Allen's—was a 3 inch. Now on Center street there was a 6 inch from Second to—well it is Fourteenth now, they called it, just a little bit from Fourteenth.

Q. What is now Fourteenth?

A. I believe they call it Fourteenth now; I think it is.

Q. To what point?

A. It was just a little bit beyond there. On Crocker street there was a piece of 3 inch in between Third and Fourth. Now we go back to the north and south streets. On Second street, starting at the Wabash with an 8 inch, up as far as Walnut. And start again at Locust with a 6 inch goes to Center, and then a 4 inch—well it only went about a couple hundred feet north of center. Now Third street, I guess it is the old K. D. Market street, begins at Market street on Third and runs 3 inch up to Walnut; then there is a 4 to Grand; then a 3 up to Center, pretty close to Center, not quite.

There is a great deal of this that I am talking about is not
550 in the ground at present; this was at that particular time when I commenced. Now 4th street, a 6 inch right north of the Rock Island to Walnut; then a 4 inch from Walnut to Center, just a little bit beyond Center a couple hundred feet, I think. Then Fifth street from Chestnut to south of School, 3 inch; and there is a little strip on Chestnut from Fourth to Fifth a little beyond Fifth. Now Sixth street, there is a 2 inch from Cherry half way to Mulberry, and then 3 inch to Mulberry, just a little north of Mulberry. Then it starts at Walnut again and went to School, 4 inch. Seventh street is a 3 inch with the exceptions of a couple half blocks, all the way from Mulberry. There is a half block from Mulberry that is not there. Then there is 3 inch to School. There is a piece on Ninth street between Mulberry and Walnut, 4 inch. Cherry street was 3 inch from Fifth street, I think, to Eleventh. Then 2 inch over to Mulberry. On Mulberry there was 3 inch from Fifth Street to Eleventh. I believe that is just about all that was in.

Q. Now, was there some changes or extensions made in '86 after you went to work?

A. Well, they were making changes all the time.

Q. You had nothing to do with the main system or laying of mains until you went to work for the Company; you had no special information with regard to it?

A. Not a thing.

Q. In what way have you learned as to the size of the mains,

particularly in the system as it was in 1886? How have you got that information about that?

A. Well by seeing and repairing, locating everything in the ground, and all new work. I took a record of everything which went into the ground, and practically after it was in the
551 ground before it was covered up.

Q. How much of the system as it was in '86 have you personally relaid?

A. Quite a bit of it; practically all of it. There is three or four streets possibly I have not relaid, that is enlarged.

Q. In relaying you sometimes at least use a different size pipe from what you took out?

A. Yes, sir.

Q. So that the size of the pipes in that part of the system is not the same now in many instances as it was in 1886?

A. No, sir.

Q. Well, now, such parts of the system as it was in '86 that you did not relay and replace with new pipes, what personal knowledge have you of that?

A. All the knowledge anybody could possibly have, being there in person.

Q. I am speaking now, if there are any of those mains that you have not relaid, what do you know about that?

A. There is no main in town, I don't suppose, a foot in town I have not dug up and visited personally.

Q. You had occasion to repair and uncover all parts of them?

A. Yes, sir.

Q. In that way you got your information as to such mains as you have not relaid?

A. Yes, sir.

Q. Do you know the streets of Des Moines that are paved?

A. Well, a good many of them, yes; especially if there is a gas main under the pavement.

Q. You know all of the streets of Des Moines that are paved that have gas mains under them?

A. Yes, sir.

552 Q. I wish you would examine plate #29. (Witness refers to plate.) Now, you will observe that plate purports to be a map of the city showing the paving, and you will notice the key showing the different kinds of paving in different colored inks. Have you examined that map?

A. I am doing that right now.

Q. State whether that is substantially a correct map of the paving system of Des Moines, as you know it.

A. It is practically correct, it is not exact.

Q. Have you mains under all of the paving of Des Moines, that is to say, have you mains on all streets of Des Moines which are paved?

A. No, sir.

Q. Will you refer to plate 31, please, and examine that plate and tell the Master whether that represents the main system of the Com-

pany as it was in Des Moines the first of this year, and showing with substantial accuracy and correctness the location of the mains on the various streets of the city?

A. I will say this map is absolutely correct. There might be a slight variation in some small portion. I would say it is absolutely correct.

Q. Now I will ask you if you could from memory describe or state to the court the main system of Des Moines, showing the streets of the city upon which those mains are located?

A. Yes, sir.

Q. And could you also from memory and your personal knowledge state to the court the size of the mains of the various streets?

A. Invariably so.

Q. I wish you would examine plate 32, which is marked "Soil Map." And you will observe in the right hand corner of
553 the map a key to the map, which is in colors, indicating the different kind of soils. Now let me ask you, Mr. Moul, whether you are familiar with the kind of soil with which you have to deal in laying mains over the city of Des Moines?

A. Yes, sir.

Q. Does the character of the soil differ in different localities of the city of Des Moines?

A. Yes, sir.

Q. Of course, saying the city of Des Moines, I mean that portion where your mains have been laid.

A. Yes, sir.

Q. Tell the Master what kind of soil you have to deal with in laying mains.

A. We have a very white sand soil; then we have a sandy soil; we have a hard clay, and we have got what they term water clay. They term another one gumbo—hard, black dirt. We have got considerable stone in different portions of the town, it is pretty stony. But clay practically speaking will cover the largest portion of the town; clay and sandy soil mixes together and is the largest portion of the soil we have got in town.

Q. Now, I notice on this map what is indicated under the key as water near the surface; what do you understand by that?

A. Well, that is in low places, take a place like on the south side, a kind of sandy loam; the conditions of the river brought the water nearer the surface. Then we have localities—take it out towards Grand View that the ground is full of water and no way for it to get away whatever.

Q. Water near the surface, in speaking of soil, indicates the kind of ground where you have water to deal with in the ordinary season laying your mains.

A. No, it does not indicate the ground; I would say it in-
554 dicated the season more than anything else.

Q. Does it indicate the ground which in ordinary reasons in digging down to lay your main you have water to contend with?

A. Yes, sir.

Q. Wet, low places?

A. Yes, sir. We sometimes strike water on the top of the hill, and quick sand together.

Q. I wish you would examine this plate called Soil Map and state whether that with substantial accuracy shows the different kinds of soil with which you have to deal in laying mains in the city of Des Moines.

A. It will in different localities. As I said before, I don't know exactly what those different colors would take in. Soil will change. We will say for instance you are going up Second street, and you will strike the first thing a loamy sandy soil. Then as you go up the hill you will strike water clay. Then softer clay, and then finally get into a bed of quick sand. Further on up you strike a bed of sand stone, they lay within a short space of one another; they ain't over 35 or 40 feet apart. I would say those colors takes in that territory in which those conditions exist.

Q. What do you say as to whether this does with substantial accuracy indicate the different kinds of soil with which you have to deal?

A. I would say it is practically right.

Q. Do you have rock in places in Des Moines to cut into or deal with? in laying your mains?

A. Yes, sir.

Q. Where are those places?

A. You will strike one over on East Court Avenue east to
555 Ninth street.

Q. How large a place is that?

A. Well, it varies, practically from Ninth to Tenth, before we get out of it in our depth.

Q. Now, if you will refer to the map, what if anything is there on the map that indicates that rocky place you have spoken of?

A. You can see a dot colored red.

Q. That round red mark?

A. Yes, sir.

Q. Is there any other place you have to contend with rock?

A. Take Second street from this side of, I guess it is Ascension or Division, I don't know which, up until you get past Fourth street or University.

Q. Now that is on the west side?

A. Yes, sir.

Q. What is there on the map that indicates that rocky condition?

A. There is a red kind of an oblong mark here.

Q. Now, is there any other places?

A. We have got a place out on Twentieth and Francis, from just south of Francis to north—I can't name that street now; about a block long anyhow on Twentieth street.

Q. Is that indicated? in some manner on this map?

A. Yes, sir.

Q. What?

A. That has got a round mark colored red.

Q. Are there still other places that have rock?

A. I can't see the names on those streets.

Q. What I am getting at in this question Mr. Moul, is to call for your personal knowledge; then we will see if your personal knowledge corresponds to the map?

A. You have stone to contend with on College Avenue or
556 State Street, practically from Bluff to Fifth.

Q. What on the map indicates that?

A. I can't see the names of the street- on there. I suppose that is supposed to be marked here; I don't know whether it is in that particular locality or not.

Q. Judging from the map?

A. I would judge that is where it will be. It is a kind of an L shaped mark here. It may not be exactly that position or that place.

Q. There is still another place where you found stone to interfere with you?

A. Well down around Prospect Boulevard, I believe it is called down there, around Lincoln Avenue, Eighth street, right in that locality we get stone.

Q. Where do you get your sandy soil mostly?

A. Down on the river. Either side of the river and out towards the fair grounds.

Q. Now, the part of the map colored brown, I should call it, does that show substantially and accurately the sandy regions you have referred to?

The MASTER: Does it mean sand or sandy soil?

A. It takes in practically both of them. Of course there is a part going through down, a street than runs diagonally across the town, that is very light sand, and both sides of that there is more sandy soil, more dirt mixed; but there is a street going through here, 60 or 70 feet wide, that has white sand pretty difficult to handle.

The MASTER: Fine sand?

A. Yes, sir; seems like the river run through there.

Q. By what color do you find that indicated?

557 A. I suppose that is in the yellow.

Q. Where is the region of hard clay?

A. That varies; it is practically in any part of town, you will strike more or less.

Q. You have two kinds of clay, if I understood you?

A. Yes, sir.

Q. How would you designate that?

A. One is what they term water clay and the other is a kind of, well soft clay, more moisture in it; that is, it mixes up better.

Q. Looking at the map again, the portions of the map colored what I would call light green, the first color at the top of the key, is that the kind of clay you speak of of which you have a great deal?

A. Yes, that is what we call ordinary clay.

Q. Now, does the coloring on the map substantially represent with substantial accuracy the correctness of the regions where that kind of clay prevails?

A. Well, I would say yes.

Q. Now, hard clay, where do you find that?

A. Well that is scattered mostly up in Highland Park.

Q. The green portion up in Highland Park shown on the map, does that indicate substantially the region of the hard clay?

A. Well, practically the territory.

Q. Have you any of that kind of soil any place else in Des Moines?

A. Not particularly that kind.

Q. I will call your attention to the region marked with a dark green on the plate in west Des Moines?

A. Well, that is what we term a sort of gumbo.

Q. You call that gumbo?

558 A. Well we call it that.

Q. It is a clay soil?

A. Yes, it is a very hard clay soil.

Q. It is different from the other clay formations?

A. Altogether different.

The MASTER: Kind of rubber like?

A. One is; the other is kind of hard, clumpy, won't mix.

Q. Does that dark green coloring on the map at the point indicated show with substantial accuracy where that kind of clay prevails?

A. That kind of clay prevails around University in that locality. As I said before, I cannot see the names on this map.

Q. Can you tell by examining the map whether that shows substantially the location of that formation?

A. I would say it would.

Q. Take the street running north of that, marked University Avenue, and then to diagonal street running through it, Cottage Grove Avenue, and the street east of it Nineteenth, and west Twenty-eighth, and the street at the extreme south point extending south about midway to Woodland Cemetery on the west side, I wish you would tell the court whether this substantially represents the region of that hard clay?

A. Yes, as I said before, there is little streaks of this that you will strike in between the ordinary range.

Q. Now, the portion of the soil which is here marked water near the surface, examine the map with special reference to that that being a blue color?

A. It is a light blue.

Q. State whether that shows with substantial accuracy the regions of the place where the water is near the surface?

A. I want to say the seasons change those conditions.

559 Q. You have expained that. But do the places on the map indicated by this blue coloring show the location of the part, or the location of the ground you have spoken of where the water at times bothers in laying mains.

A. Yes, sir; these are the portions you most likely strike water, if at all close to the surface.

Q. You may go on and explain to the Master what you have in mind in speaking of the seasons changing?

A. The reference I had—you take lots of this ground where we have a good deal of rain the water will lay practically on top of our main; we have it to contend with and we have to bale it out. Take dry seasons like this it doesn't prevail. There is portions of town you strike water that has been drained.

The MASTER: The drainage system of the city affects that?

A. Yes, sir, to a large extent.

Q. You may examine the large map now shown you which is marked Exhibit 17 and state to the court fully and in detail what that shows with reference to the main system as it was the first of this year, first of January.

A. This shows all the mains and sizes of all the mains belonging to the Des Moines Gas Company, that is now under ground in Des Moines.

Q. Does it show the location of the mains with reference to the particular streets upon which the mains are laid?

A. Yes, sir, it does.

Q. Does it show in any way the size of the respective mains as laid in the streets?

A. Yes, sir.

Q. And by what symbol or in what way does it show the mains, what marking?

560 A. An inch and a quarter is a broken line with a quarter inch mark; an inch and a half, the same way; a two inch with a broken line, with a 2 in it; three inch is a broken line with a 3 in it. four inch is a broken line with a 4 in it; six is a dash and a dot with a 6 in it; eight is a straight line solid with an 8 in it; there isn't very much ten inch on the east side.

The MASTER: That line there indicates a four inch main?

A. Yes, sir, a broken line with a 4 in it.

Q. The MASTER: This broken line indicates what?

A. That is not a main. The ten inch is a broken line with a 10 in it; twelve is the same; fourteen is a line and two dots; sixteen I think is an unbroken line with a 16 in it.

Q. Let me ask you now whether where the figures appear on the map in connection with the main system, whether those figures indicate the size of the main on the streets in the locality where the figures appear?

A. Yes, sir.

Q. Have you examined that map in detail and with care for the purpose of determining whether it shows with accuracy and correctness the main system as it is on the east side of the river, showing where the mains are laid, the streets on which they are laid, the length of the mains and the size?

A. Yes, sir; as far as the sizes and locations are concerned.

Q. Basing your answer upon your personal knowledge of this main system, acquired in the way you have told the Master, I will ask you whether that map is a correct map of the mains, showing where they are laid and the size of the mains?

A. I would say that map is absolutely correct.

Q. I now call your attention to exhibit #18, purporting to be a map of the main system on the west side of the river. What
561 does that show with respect to the main system on the west side of the river, and south side if it shows anything on the south side, and north of the river?

A. I would say that shows everything pertaining to the main extensions of the west side and north; I think the north side is on here.

The MASTER: At what time?

A. At the present year. The southwest and north.

Q. Now, does that map show the location of the mains as they are at the present time, as they were about the first of January, in the territory that it embraces, showing the location of the mains in the streets and the size of the respective mains as laid in the streets?

A. That shows the sizes and the streets in which they are laying; but it does not show the location of the main.

Q. What do you mean by that?

A. It does not give you any distance, which side of the street it is on.

Q. That is to say, it don't show the location in the street?

A. Yes, sir.

Q. The place in the streets where it is laid, but shows the streets upon which the mains are laid?

A. Yes, sir.

Q. In what way does this map show the size, or indicate the size of the mains—in the same way that the map of the east side shows them?

A. Yes, sir.

Q. So that on this map, like the other, where the figures appear, it indicates the size of the main at the place where the figures are placed, does it?

A. Yes sir.

562 Q. Basing your answer upon your personal knowledge of the main system of Des Moines, obtained in the manner you have stated, I ask you whether this map, Exhibit 18, is a correct and accurate map of the main system of the Des Moines Gas Company, as it was on the first of January of this year, showing the streets upon which the mains are laid and the size of the mains?

A. I would say that may is absolutely correct.

Cross-examination by R. O. BRENNAN, Esq.:

Q. Mr. Moul, in the month of October, this year, you will have completed about twenty-five years of active service for the Gas Company?

A. Yes, sir.

Q. And during all of these years, with the exception of three, you have been foreman of the construction department of the distribution system?

A. Yes, sir.

Q. And you have acquainted yourself with all of the details in connection with the distribution system of the Company?

A. Yes, sir.

Q. And your were quite familiar and are quite familiar with the extent of the distribution system of the Gas Company in the year 1886?

A. Yes, sir.

Q. You knew the location of the mains at that time and the sizes of the mains?

A. Not at that time I didn't.

Q. You do now?

A. Yes, sir.

563 Q. And you have testified to their location and to their various sizes?

A. Yes, sir.

Q. I understand you that other mains have been substituted for those which were in the ground in 1886?

A. In some instances.

Q. Now to what extent were other pipes or mains substituted in a general way?

A. Pretty largely.

Q. About how many miles of mains were in existence in 1886?

A. That I couldn't tell you.

Q. At the end of the year?

A. I couldn't tell you.

Q. Could you tell us approximately?

A. I could make a rough guess.

Q. Well, I wanted to get the benefit of your estimate.

A. Well, I would say somewhere along about 16 to 20, just making a rough guess.

Q. And that was confined largely to that portion of the city lying west of the Des Moines river?

A. Well, largely, yes.

Q. There weren't very many gas mains in East Des Moines in the year 1886?

A. Not very many.

Q. About how many miles would you say existed in East Des Moines?

A. Well, let's see; well I would say about four miles.

Q. Now in 1888, the territory known, as University Place, North Des Moines and Highland Park, Capital Park and Sevastopol were all separate and independent corporations?

A. Yes, sir.

564 Q. So that the territory of the city of Des Moines was much smaller in area than it is now?

A. Yes, sir.

Q. About the year 1891 it was that this territory to which I have called your attention was annexed to the city?

A. I think North Des Moines was at that time.

Q. Yes, and Capital Park?

A. That was later.

Q. Weren't all the suburban towns annexed to the city of Des Moines in or about the year '91?

A. Well about that time or later.

Q. Well, weren't they all annexed at or about the same time?

A. Yes, pretty close to it; I disremember the year.

Q. In or about the mont- of March '91, isn't that your recollection?

A. Well, it was in the spring of the year.

Q. So that your memory is pretty good on the number of miles of mains in this distribution system and their location, etc.?

A. Yes, sir.

Q. Your acquaintance with the system extends over the period from the first?

A. Yes.

Q. You can tell the Master, I take it, about the extent of the distribution system in 1894, approximately?

A. I didn't keep it year by year.

Q. But in or about that year you could tell the Master, could you not, approximately, the extent of the distribution system in miles?

A. I couldn't tell you the amount we laid per year, in miles or feet, that is in the ground, but I can tell you every size on every street that has got a gas main in it.

565 Q. You were able to tell us approximately, that is, give us your estimate of the number of miles of mains in 1886, which you estimate to be somewhere between 16 and 20 miles?

A. I would have to make a guess.

Q. Now, could you give us an estimate of the year 1894, covering that period?

A. I could make a guess, but I couldn't base it on facts.

The MASTER: Give your best judgment?

A. I could go back and figure each year about what we laid and add to what we had to that result.

Q. Can you do that?

A. Yes, I can do that in a very short space of time.

Q. All right, I would be glad to have you do that.

A. We had about that time 50 miles. Now that is only a guess, bear that in mind.

Q. You have kept a record, have you, Mr. Moul, of the extensions made by you and where the mains were substituted?

A. Yes, sir.

Q. And you make reports to the Company every day or week?

A. Yes, sir.

Q. And you keep an account of the cost of labor and where the mains were laid and file these reports with the Company?

Objected to as improper cross examination.

A. Yes.

Q. And you keep and furnish the company as its foreman with an itmized statement of all of the expenses in connection with the work in your department?

Same objection as last above.

A. No, sir.

Q. Just what record do you keep and have you kept during the period of time that you have been foreman in the distribution department?

566 Same objection as last above made.

A. The only record I keep is pertaining to the new extension or repairs or new service works and those I turn into the office.

Q. What is the nature of the records which you keep of those extensions?

Same objection as last above made.

A. The main extensions, the size of the main, the location on the side of the street and the distance laid.

Q. And the amount of labor employed?

A. No, sir.

Q. Do you keep any account of the labor?

A. That does not go into the sketch at all; the labor is charged into the organization pertaining to that certain expense.

Judge CARR: I wish it to be understood that all the examination on this subject goes in over our objection as not proper cross examination. We make that general objection to all this class of testimony.

The MASTER: I will take the answer. I am inclined to think it is cross examination.

Q. Is the labor account divided?

A. It is divided between new service work, extensions or repairs.

Q. But you do keep a record of the labor in connection with your duties as foreman?

A. In certain conditions, yes.

Q. Explain the conditions under which this record of labor is kept?

A. As far as I am concerned I turn into the office, as far as the expenses are concerned the amount of labor of each man per hour, the rate per hour. I have no access to the expense otherwise except the labor particularized.

Q. Do you specify the character of the work which is performed?

567 A. Yes, sir.

Q. And the kind of excavation?

A. No, sir. Well in a sense, on extensions but not on new services.

Q. You keep a record of the character of the excavation or new services?

A. Not more than the location.

Q. Just the location?

A. Yes.

Q. That is to say, you make a report to the company of the amount of labor used and the character of the work performed and the region of the city in which it was performed.

A. Well, the report on the labor is not for each particular job. We may be putting in several services on the same day, and the labor is charged to new service for that day and the number of the men occupied.

Q. Well, that is shown in the character of the work, whether it pertains to services or extensions?

A. Yes, sir.

Q. And you have made those reports since you have been foreman of the company?

A. Invariably.

Q. Every day?

A. Constantly.

Q. How frequently are those reports made?

A. At the present time at the end of a job of new work, extensions, I turn in my reports as near as I can at the finish of it. The new work is taken care of as far as labor is concerned twice a month.

Q. In order to make your report after the completion of the work of extensions, you keep a daily report, do you not?

568 A. In some senses.

Q. For your own use, and to enable you to make this report after the completion of the job?

A. I make, itemize it until I can complete the job.

Q. In other words, you have kept a careful account and record of all of the transactions with respect to the extension of mains in the city?

A. I have tried to keep a correct account.

Q. And you turn those reports into the company?

A. Yes, sir.

Q. And the location is the only way by which you could determine the character of the excavations; that is, the reports upon the face do not show the character of the excavation, as I take it?

A. I do not believe I understand your question.

Q. What I want to get at, in these reports, do you state the character of the excavation necessary to be made to perform the work?

A. No.

Q. Whether it is through rock or gumbo?

A. In my returns I designate the nature of the soil; that is when I complete the job.

Q. That is in your report?

A. Yes, there is a blank space in that report specifying it; if it is a different kind of soil I mark it.

The MASTER: Daily or monthly?

A. Whenever I complete an extension.

Q. Do you have one of those blank reports in your possession now?

A. Yes, it isn't quite blank.
Q. One that shows generally the nature of the report which you make?
A. Yes, sir.
Q. May I look at it please? (Witness produces it)

—. ——.

569 Q. Is this the form of report you use in connection with your duties?
A. That is the form of extension work, the present form.
Q. How long has this form been in use?
A. That particular form has been in use for the last four or five years.
Q. Do you have in your possession a copy of the form or one of the original forms which were used prior to four or five years ago?
A. I have not.
Q. What difference was there between the former reports and the one which you now show?
A. Very little.
Q. Can you tell us in a general way?
A. Well, if you will give me that I will show you the difference. I can show you better than I can tell you. The other forms didn't have this in (indicates).
Q. Didn't have the location of drips and pumping points?
A. Yes.
Q. And didn't have the reference to the sketch book that is entered in the sketch book showing the book and page where entered?
A. Yes. You will find that is the same form, singly and was not double.
Q. In 1886, Mr. Moul, there were very few streets that were paved in the city of Des Moines, isn't that true?
A. Yes, sir.
Q. Do you know about how many streets were paved at that time?
A. I don't believe I could tell that.
Q. There has been considerable pavement constructed since that time?
A. Yes, sir.
570 Q. And your mains were all laid before the pavements were laid?
A. No, sir.
Q. Or at or about the time that the pavements were being reconstructed or replaced?
A. Not all of them.
Q. About what proportion were laid after the pavements were in?
A. The relaying of the mains was practically done on the time of repaving. Now there has a great many of them been laid since the pavement is in. I would say it is a pretty hard matter just to get at.
Q. Well, take all the mains in the business section of the city, both east and west Des Moines, they were all laid either before the pavements were constructed or at a time when the street was being repaved?

A. Not all of them. We took up the paving on East Court Avenue after it was paved.

Q. When was that?

A. Three or four years ago.

Q. Was that for the purpose of repairing the main?

A. No, putting in a larger main.

Q. What was the size of the main on East Court Avenue at the time you took it up?

A. Well, it was 8 inch and we put in a 16.

Q. Between what points on East Court Avenue?

A. Between First, and the pavement ends at Twelfth.

Q. Did you go to Twelfth street?

A. Yes, sir; that is with the 16 inch.

At this time an adjournment was taken until 1:30 p. m.

571 1:30 o'clock p. m., WEDNESDAY, *July* 19, 1911.

HENRY MOUL being continued in cross examination by R. O. Brennan, Esq., testified as follows:

Q. I was asking you before the adjournment about the main which you laid on East Court Avenue. You say that you took up one of the old mains and substituted a larger main?

A. No, sir.

Q. Just what did you say?

A. I said we took up the pavement and laid a sixteen inch line. I didn't say anything about removing the eight inch.

Q. Didn't you have a main in there in Court Avenue?

A. Had an eight inch as far as Sixth street.

Q. From the river?

A. Yes, from First street.

Q. From First street to Fifth street there was in existence a five inch main?

A. Eight inch.

Q. Did you disturb that main?

A. No, sir.

Q. Then you put in a main from Fifth street east to Twelfth did you?

A. Well it started at First street.

Q. Then you did take up part of the old main?

A. No, sir; I didn't remove the old main at all. I put the 16 inch line new independent from the old one.

Q. You left the old main in there?

A. Yes, sir.

572 Q. So that from First street to Fifth street on east Court Avenue you have two mains running parallel to each other?

A. Yes, sir.

Q. Have you in the city of Des Moines as a part of this distribution system any other mains in duplicate?

A. Yes, sir.

Q. In what other parts of the city?

A. Take it on Court Avenue we have two lines.

Q. Just what portion of Court Avenue?

A. From First street to Fifth. We have three lines on Fifth street from Court Avenue to Mulberry. We have three lines on Mulberry from Fifth to Thirteenth. We have two lines on Grand Avenue from Fourteenth to Nineteenth. We have two lines on Nineteenth from Pleasant to Crocker. We have two lines on Grand Avenue from Seventh to Ninth. There is two lines on First street on the west side of the river for a short distance from the Wabash up to Court Avenue, there is two lines, in fact three.

Q. Could you tell us Mr. Moul in feet or in miles the number of mains that are in duplicate or in triplicate serving the same territory?

A. Well I could put it into blocks and you might do the figuring yourself.

Q. All right. You may do that if you prefer, give us the number of blocks.

A. Well from First to Fifth on Court Avenue that is four blocks, well you might make that five because it goes to Sixth street, there is a small main in there too. Then there is a block and a half on First street.

Q. On east First?

A. No, west. Now take east Fifth street from Grand to Maple is one I omitted, there is two lines there, that is three blocks.

573 Now take Mulberry from First to Fifth, within a half block on Fifth.

Q. That is four and a half blocks?

A. Yes, sir. Now that double line runs to Thirteenth street, as far west as Thirteenth.

Q. Then there is eight blocks from Fifth to Thirteenth to be added to this four and a half?

A. Yes, sir. Then on Grand Avenue from Fifteenth to Nineteenth. Then take Grand Avenue from the river to the alley west of Second street that has two lines, that would be practically a block and a half. Now there is two blocks on Grand Avenue between Seventh and Ninth. On Ninth street from Cherry just a little bit south of the Rock Island railroad.

Q. That is south of Vine street?

A. Yes, just a little bit, possibly fifty feet maybe.

Q. Probably a block and a quarter?

A. Just about. Ingersoll Avenue from Nineteenth to practically Fourteenth, excepting a half block, omitting a half a block.

Q. That would be about twenty blocks, twenty and a half to be accurate?

A. Yes, just about. Then on Nineteenth street you have got two blocks.

Q. Nineteenth between what points?

A. Between Pleasant and Crocker, Cottage Grove where they come together there. Then one block on Crocker street between Eighteenth and Nineteenth and Crocker street between Third and Fourth. West Fifth street from just a little bit north of Park to about a hundred feet south of School.

Q. That would be approximately two and a half blocks?

A. Be just about two blocks, two and a half blocks.

Q. You say a little north of Park, the next street is Cen-
574 ter, then Crocker and School?

A. Yes, sir.

Q. How far north of Park is it?

A. Oh I would say about fifty feet I guess catches the la-t lot.

Q. That would be three blocks and a half wouldn't it, that would be Park, Center, Crocker and School?

A. No, it would not make three blocks, two and a half. Then we have got a little piece on Center street between 4th and 5th a full block there in duplicate. I guess you have got it all.

Q. On east Court Avenue from the river to Fifth street the old main was eight inches?

A. Yes, sir.

Q. And what is the size of the duplicate main?

A. Sixteen.

Q. And when was it put in?

A. The sixteenth?

Q. Yes.

A. I think about four years ago, four or five, I don't know just exactly the date.

Q. How far east did the mains of the gas company extent on Court Avenue?

A. At the pres-nt time.

Q. At the time the duplicate main was laid?

A. The old main?

Q. Yes; how far did it extend?

A. Well about fifty feet east of 13th street—no let's see the four inch ran up to 15th, the old main was laid when the 16 was put in there up as far as 16th street.

Q. Then do I understand prior to four or five years ago the company had a main in east Court Avenue from the river to east
575 15th street?

A. Yes, sir. Well they had it farther than that on Court Avenue.

Q. How far east did the old main go?

A. I guess they call it James street or Astor I think now, I forget which.

Q. Out to 15th street or beyond that?

A. It is east of that, a block east, the next block east.

Q. It would be about the same as 16th street produced south from Walnut?

A. No there is a block in between 15th and 16th, I think they call it Astor if I remember rightly.

Q. Is it that street that runs south from Capitol Avenue from Franklin square, would it be about that street produced south, or east or west of that point?

A. It is east of that.

Q. How far east?

A. One block.

Q. That was the terminus of the main on east Court Avenue at that time?

A. Yes, sir.

Q. Was that an eight inch from the river to this point which you have described?

A. Yes, there was an eight inch in there then up as far as Fifth street.

Q. What was the size of the main from 5th street east?

A. Three inch to six and four inch from there out.

Q. There was not a uniform size then of main between those points.

A. No, sir.

Q. You had eight inch and five inch and three inch and four inch?

576 A. Didn't have any five inch, don't have such a thing.

Q. You had four inch?

A. Yes, sir.

Q. Three inch?

A. Yes, sir.

Q. And what other size?

A. Eight inch. Eight, three and four.

Q. When you laid this duplicate main in Court Avenue four or five years ago, how extensive was that main, that is to say how far did it run f-om Fifth street?

A. Ran from First to 15th street.

Q. And paralleled this other main?

A. Practically so.

Q. And the old main was left in there?

A. Yes, sir.

Q. And the service connections left just as they were?

A. Yes, sir.

Q. And they are still in that condition?

A. Yes, sir.

Q. Now you spoke of a main on west First street. What was the size of the main on west First street?

A. At that time four or five years ago or the present time?

Q. Four or five years ago.

A. I don't know just how long ago we put in that twenty four, the old main has been there quite awhile, the eight inch?

Q. What is the size of the old main?

A. Eight inch and we put in a twenty four and a six I would say about four years ago.

Q. Where was the new main constructed with reference to the old main?

577 A. On the east side of the street and the old main was on the west side.

Q. That is a block and a half in extent, the duplicate main?

A. Yes, sir.

COURT: The same size?

A. No, sir. The old one is eight inch and the new one is a 24.

Q. Now you have three blocks of new main as I call it on east 5th street from Grand to Maple. When was that new main put in?

A. That was 1896 I think it was.

Q. Of course that was put in before the street was repaved.

A. The paving that is on there now, but it was paved with cedar blocks when that ten inch was put in.

Q. But when the original main was put in, the first main?

A. You are ahead of me now, it was ahead of my time the old main on Fifth street.

Q. You don't know whether that was put in before the Cedar Block pavement was put in or not?

A. No, sir; I don't know anything about it.

Q. But you did put in this additional main or duplicate main on east Fifth street from Grand Avenue to Maple street?

A. Yes, sir.

Q. Where was that placed in the street?

A. It is about seven feet west of the east curb line.

Q. Where was the old main?

A. Well it is awful close to right under the east curb line.

Q. Close to right under the east curb of the street?

A. Yes, sir.

Q. So you put the new main a little bit west of that point?

A. Yes, sir.

Q. These mains parallel each other to Maple street from
578 Grand Avenue?

A. Yes, sir.

Q. You say on Mulberry street from First to Fifth street you put in a double main?

A. Yes, sir.

Q. Do you recollect when it was put in?

A. Well that was put in the same year the 24, I would not be certain as to the time.

Q. Some four or five years ago?

A. Something like that.

Q. Can you tell us what the size of the original main was in Mulberry?

A. The original main is six inch.

Q. Upon which side of the street is it?

A. Well it is very close to the center.

Q. Where was this new main put in.

A. The first additional was put in right west of it between it and the west curb a 12 inch line. That was put in in 1888 I think it was 1888 or spring of '89 and then later four or five years ago we put in a twenty inch on the east side of the street.

Q. I don't know whether I got your answer correctly, I understood you as saying that this main was put in on Mulberry street from First to Fifth?

A. On Mulberry from Fifth to 13th. On Court Avenue it was from First to Fifth.

Q. Mulberry street from 5th to 13th?

A. Yes, sir.

Q. So that you covered eight blocks that the mains were duplicated?

A. Well partially. The first time we put in the 12 inch
579 we cut out a portion of the three inch and put in the 12. Then later, oh I would say six or seven years later we put in a 20 inch parallel with the 12.

Q. You have at the present time in Mulberry street from 5th to 13th two leads of pipe or mains?

A. Well we have three practically. We have the high pressure system going to Valley Junction.

Q. Does that serve any customers in Des Moines, the *gigh* pressure system?

A. No, sir.

Q. But the other two mains serve the customers along Mulberry street between these points?

A. Yes, sir.

Q. And they are both on the same side of the street?

A. Yes, sir.

Q. On Grand Avenue, you mention west Grand Avenue, Fifth to Ninth street there was some change made in the distribution system?

A. From Seventh to Ninth. The original six inch was in there and we put in parallel a 12 on the opposite side of the street.

Q. I understood you to say some change was made in the distribution system on Grand Avenue between 5th and 9th?

A. No, it was 7th.

Q. You spoke of 5th and 9th and 7th to 9th?

A. I didn't understand you then.

Q. What is the fact on Grand Avenue from 5th to 9th?

A. We haven't anything parallel except 7th to 9th.

Q. You have parallel lines just on two blocks?

580 A. Yes, sir.

Q. When was the second line put in?

A. Well it has been quite awhile ago, I would hate to specify the year, but I would say that was put in there in 1892 or '93, possibly 1890. A portion of it was put in in 1890 and the balance of it was put in at different times after that.

Q. And the original main, you don't know when it was put in?

A. Oh no.

Q. You spoke of a duplicate line on 9th street from Cherry street to a point a few feet south of Vine street where you have parallel lines?

A. Yes, sir.

Q. And when was the new main put in on that street?

A. The last one we put in is a six inch line, I think that was—well I would say about three years ago.

Q. You have three lines of pipe in 9th street between these points?

A. No, sir.

Q. Just two?

A. Yes, a six and a three.

Q. And the old line is still serving customers?

A. No, I think not. I don't think there is anything being used off of it.

Q. Were the service connections left when you put down the new main?

A. Yes, sir.

Q. They were not disconnected?

A. No, sir.

Q. Now on Ingersoll Avenue from 19th to 40th street with the exception of perhaps a half block you say you have two lines
581 of mains?

A. Yes, sir. But one is high pressure going to Valley Junction. It is not connected to anything in town.

Q. That has nothing to do with the distribution system of the city of Des Moines proper?

A. No, sir.

Q. And don't serve any customers within the city of Des Moines?

A. No, sir.

Q. Nonservice connections made to it?

A. Well might be possible it had between 40th and 41st, there might be one or two consumers on it. I think there is.

Q. Is the main which you refer to as being the high pressure system Valley Junction is that shown upon the map Exhibit 17, as forming a part of the distribution system of the Des Moines Company?

A. I could not say.

Q. Can you tell by an examination of the map?

A. The six inch shows here.

COURT: What is the answer?

A. It shows on this map yes.

Q. Are you able to tell us about how many service connections are made to that main?

A. I can tell you just exactly in about a minute. You want the total amount all the way through or in this particular district?

A. What I would like to know if you can tell us how many service connections are made in the city of Des Moines to this so called high pressure main which serves Valley Junction.

A. I can't tell you that.

582 Q. About how many?

A. Well that is a pretty hard question to answer.

Q. Are there so many?

A. No there is not so many, but then I have not any knowledge particularly of just how many and to make a guess on it I might be considerably mistaken.

Judge CARR: You mean the services that connect directly with the main, not services connected with branch mains if there are any?

Mr. BRENNAN: He has spoken here of this main which is placed in Ingersoll Avenue, high pressure system which serves Valley Junction. Now I want to know if that main serves any customers within the corporate limits of the city of Des Moines, and if so how many?

A. Well it serves some, but I don't know how many, not very many. Not many services.

Q. Where does service commence on that main?

A. I think the first one tapped is Kurtz just this side of 41st street and one across the street from him and about three or four on 43d street. Oh I would say making a rough guess possibly 25.

Q. Does it serve the territory lying west of 41st street?

A. Well not all of it.

Q. And north and south of Ingersoll Avenue to any extent?

A. Not north.

Q. Does it south?

A. Well partially.

Q. How far south are consumers served from this Ingersoll Avenue main?

A. Well whatever there is on 43d street and Grand, but
583 nothing south of Grand nor nothing east of 44th.

Q. Well west of 44th?

A. All that is furnished is furnished off of that main west of 44th on Grand Avenue on the road to Valley Junction.

Q. In addition to this high pressure main you have how many other mains in Ingersoll Avenue?

A. One.

Q. Upon which side of the street is it?

A. Well it would be the north side.

Q. Where is this high pressure main?

A. Right along side of it.

Q. What is the size of the old main?

A. 12 inch.

Q. What is the size of the high pressure main?

A. Six inch.

Q. 19th street you say between Pleasant and Crocker streets, you say that you have duplicate mains?

A. Yes, sir.

Q. When was the last main put in?

A. About four or five years ago.

Q. And is it upon the same side of the street as the other main?

A. No, sir; on the opposite side.

Q. What is the size of the last main which was put in?

A. 12 inch.

Q. What is the size of the old Main?

A. 4.

Q. The 4 inch main was left there and the service connections left as they were?

A. Well a great many of them. The reason that possibly we did not remove that main was because it was right under the street.

584 Q. Well you left it there?

A. Yes, sir.

Q. Service connections are made to that main, were made to it and are being used?

A. Some of them are yes.

Q. On Crocker street from 18th to 19th street just what changes were made in the distribution system there?

A. There was not any changes made except to put in a larger main on the opposite side of the street and connect it to a large one that we had on Crocker and 18th.

Q. What size main did you put in on Crocker street?

A. Put in a ten inch.

Q. What size was left?

A. Six inch.

Q. On Crocker between Third and Fourth streets?

A. There is a 10 inch and a three inch.

Q. When was the ten inch main put in?

A. Well that was put in when we had that awful hot spell here eight or ten years ago.

Q. Ten years ago this summer?

A. I guess it is about ten.

Q. 1901?

A. Something about that time.

Q. On west Fifth street, commencing at a point north of Park what change was made there?

A. We put in a six inch.

Q. Between what points?

A. Between Park and School.

Q. What was the size of the main which was in the street at that time.

585 A. Three inch.

Q. That was left in the street?

A. Yes, sir; but they were all connected up, everybody was connected up off of the six inch.

Q. Are there any service connections to the three inch main in 5th street?

A. Some of them and still they are connected to the six inch too. Nearly everybody on Fifth street is on two services.

Q. On two lines of main?

A. That was put in there under the fu*le* gas system.

Q. When was the fuel gas system adopted?

A. 1890.

Q. Did you have two lines of mains?

A. Did at these points that I speak of.

Q. Was the company serving consumers with fuel gas different than they are now?

A. They undertook it.

Q. In what manner?

A. They undertook to furnish gas for fuel at a different price than they did illuminating. It was necessary for them then to have two lines.

Q. When was that?

A. 1890.

Q. How long did they serv*ing* consumers in that manner?

A. I can't tell you that.

Q. Was it more than a year?

A. I don't think it was, I don't think it was more than two or three months.

Q. The only change made in the distribution system was up Fifth street?

586 A. It was the center point, it was a test.

Q. On Center street between 4th and 5th that was in that same region?

A. Yes, sir.

Q. And the change was made there about the same time?

A. For the same purpose.

Q. Now aside from east Court Avenue which you have mentioned, what other streets were paved at the time that the service pipes and mains were laid?

A. Well that, I could not answer that exactly. Some of that has been laid quite a while ago and took up and relaid the pavement pretty hard for me to tell just what streets it was on.

Q. I understood you to say practically all of the mains were laid *eighter* before the pavement was put down in the street or at a time when the streets were being repaved?

A. The majority of them, yes.

Q. Would you be able to tell us about what per cent of the distribution system was put in at the time the streets were being repaved or at a time when there was no paving in the streets?

A. Oh I would say that about 75 per cent of them.

Q. At least 75?

A. Well about that.

Q. You have always taken advantage where you could of a street that was being repaved to make alterations in the distribution system?

A. As far as repairs are concerned, yes.

Q. Where you contemplate extensions of mains on streets which were to be paved or repaved, you sought to take advantage of conditions did you not of the street?

A. No, that was out of my jurisdiction.

587 Q. Well what was the fact as to how much repairing and extension work you did at a time when streets were being repaved?

A. Well we generally repaired it all, went over it all thoroughly, both mains and services and renewed it ahead of pavement.

Q. What are the dimensions of the services?

A. You mean as a total or at the present time or what portion?

Q. Yes, at the present time.

A. Inch and a quarter is standard.

Q. How long have you used inch and a quarter?

A. I think they made inch and a quarter standard in 1896 I believe it was.

Q. Prior to 1896 what was standard?

A. No standard at all. Wasn't any standard.

Q. What was the average size?

A. Well the majority was an inch then.

Q. What would you say would be the average length of the service?

A. Take the business section and the residence section combined?

Q. You can state it separately, what would be the average length of service in the business section?

A. Take them as a total they will average about seventy five feet.

Q. In the residence section?

A. I took that as a total of them.

COURT: You say 75 feet?

A. Seventy five feet on the average, yes, take business and residence districts combined.

COURT: You mean the length of the service pipe is seventy five feet?

A. Yes, on the average.

COURT: That is to say now the distance from where the main is tapped in the street to where the gas reaches the meter?

588 A. Inside of the wall.

Q. You think that the average distance would be seventy five feet?

A. Yes, sir.

Q. And that is taking into account the business section as well as the residence section?

A. Yes, sir.

Q. Can you tell us what would be the average length of service in the business section of the city?

A. About 40 feet I think. That depends of course on the width of the street largely.

Q. And depends on the location of your main in the street?

A. Well on an average take both sides the average width would be even to the width of the street, makes the same division.

Q. Now what portion of the service connection or connections is paid for by the property owners or consumer?

A. Well I can't tell you that.

Q. Do you know whether any of it is paid by the consumer?

A. No, sir; I do not.

Q. When the streets are paved or before they are paved rather, do you make any connections with the main up to the curb line for the property owners?

A. In some instances.

Q. And how frequently is that done?

A. Well some years we make it very frequently. Take the downtown district before Walnut and Locust street was paved the second time we made a thorough going over and connected up every twenty two feet and the last time it was paved we went to work and cut about two third of those off and plugged them up put them out of commission. They were not being used and wasn't any probability of it.

589 Q. You have followed that practice along streets expected to be paved?

A. At the present time we do not make any connections unless

requested by the owner of the lots with some expectation of his using it in the near future.

Q. When did you adopt the latter method?

A. Well it has been going on for several years.

COURT: Do I understand you right, you only go to the curb or lot line?

A. Curb.

COURT: And the owner pays from that on?

A. No don't pay anything when we make these connections ahead of the paving so we could not have to remove the paving when he comes to improve the vacant lot.

Q. Then you put it to the lot line?

A. Just run from the main to the curbline in front of whatever lot it was.

COURT: What do you mean by curb line?

A. That is our side of the paving.

Q. So that your practice now is and has been for several years last past to not make these connections on streets which are about to be paved unless requested so to do by the property owner or consumer?

A. Yes, or from some source or information where they are going to be used in the near future.

Q. Prior to several years ago your practice was to make these service connections on all streets where pavements were about to go in?

A. Not our practice, but by order of the city council.

Q. Well you did it whether by order of the city council

590 or to your own advantage?

A. Yes, sir. It is not any advantage to us.

Q. Now at what pressure is the gas carried through this Valley Junction main, the high pressure main?

A. I can't tell you that.

Q. You are not familiar with that branch of the service?

A. No, sir.

Q. What is the length of this high pressure main from the gas works to the city limits, do you know?

A. The west city limits, I will have to guess at that a little bit. Somewheres about four miles.

Q. What is your estimate of the average length of service pipes to the houses?

A. I gave you that a little bit ago.

Q. Or from the curb line to the house?

A. Well that depends. Unfortunately when we begin to connect a stub and know just where we want it, we have got to run up or down the curb line nearly every case that lengthens the service from the curb line, have to put that aditional pipe inside the curb line.

Q. How many house services are there that are 75 feet in length?

A. Well that is a pretty hard question for me to answer. I can read you a list of them off and you can strike your own average.

Q. You have said the average would be about 75 feet. I want to know how many house service would come within that average?

A. About ninety five per cent would come within the limit of seventy five feet.

Q. How many street lamp services are there?

591 A. I can't tell you how many street lamp services there is at the present time, I have not had anything to do with street lamps for the last four or five years.

Q. You don't have anything to do with those? That is keep a record of them at all?

A. Nothing to do with them. I run all the services as far as the posts, but I don't keep any account of them.

Q. Make any repairs?

A. Yes, I make the repairs.

Q. This map, Exhibit 17, shows these services for street lights?

A. I could not say.

Q. Look at this Exhibit 17?

A. That don't show any services at all.

Q. Just shows the mains?

A. That is all.

Q. What is the size of the street lamp services?

A. Well at the present time and has been for several years, is an inch and a quarter standard, we don't cover up anything smaller than an inch and a quarter.

Q. Prior to that time about an inch?

A. An inch, yes sir. If I remember right we started in 1896.

Q. Then adopted a standard of an inch and a quarter?

A. Yes, sir.

Q. Do you know about the average length of the street light service?

A. Well now I can guess at that pretty close, the curb is 36 feet or 32 feet, runs thirty to 32 feet so between 15 and 1 feet because it sits right inside of your curb.

Q. In excavating for the purpose of laying mains in the street, to that depth are you required to go ordinarily or what depth do you go?

592 A. Four feet on the average. Depends on the size of the main and grade but that is the standard depth.

Q. You usually put in a main where you can after the street is brought to grade do you not?

A. We don't pay any attention to that at all. We put it wherever the demand calls for it regardless of the grades.

Q. You usually go down to a depth of four feet?

A. That is the standard, nothing less than that.

Q. You have not encountered any rock have you at the depth of four feet in Des Moines?

A. Yes, sir.

Q. Where is this rock?

A. One place is on Court Avenue from 9th up to just this side of 11th.

Q. About two blocks in there that there is rock formation?

A. Yes, sir.
Q. What is the character of the rock?
A. I could not name it, some would term it kind of a bastard sandstone.
Q. Sandstone or soap stone?
A. More lime than sand, sort of a mixture between limestone and sand stone.
Q. Solid or in pockets or how?
A. Solid.
Q. Regular formation, run across any boulders up there or anything of that kind?
A. No, sir; not in that line.
Q. Did the rock extend for the entire two blocks?
A. Well practically, yes.
Q. Where else have you encountered rock in digging trenches?
A. You will find rock going up Second street.
593 Q. Where on Second street?
A. Well I think it is about, I don't know whether it is division or Ascencion, it is up this side, right on the hill this side or University.
Q. That is up along the river there?
A. On the hill west of the river.
Q. Immediately west of the Des Moines river?
A. Yes, sir.
Q. And University Avenue is what they formerly called North street in that part of the city?
A. Yes, sir.
Q. That is the old corporation line?
A. Used to be, yes.
Q. How much rock did you encounter up there?
A. Well we struck that to begin with it started in the bottom of our ditch and eventually came to the top of it and filled out the full depth of our ditch for quite a distance, two or three hundred feet and the- began to run out and we run through the rock.
Q. You were about down to the bottom of the ditch before you encountered rock?
A. To begin with. It laid in kind of an uphill position.
Q. You were going up hill were you?
A. Yes, sir.
Q. Did you have to do any b*asl*ting?
A. No, sir.
Q. Do any b*asl*ting in Court Avenue?
A. No, sir.
Q. Where else have you seen rock in making excavations?
A. You will find some on University right at the head of 4th street.
594 Q. That is about two blocks west of this point you have been describing?
A. Yes, sir. That starts in in the formation of slate and virtually goes into sand stone.
Q. Have to do any blasting up there?

A. No, sir.

Q. Outside of the three cases you have mentioned, have you encountered any other rock in portions of the city?

A. Found rock out on 20th and Francis.

Q. Did you encounter rock in digging trenches at that part of the city?

A. Yes, sir.

Q. Do any blasting?

A. No, sir.

Q. What kind of rock was it?

A. Kind of a sand and limestone mixed.

Q. At what depth did you encounter the rock?

A. We started in there on that rock, in made something in the shape of a hill and we struck it at the bottom of the ditch and it followed us then for possibly about six or 700 feet and we cut through the rock.

Q. Which is the most satisfactory soil or formation in excavating for your gas mains?

A. Well I would say that a soft clay was the most satisfactory to us.

Q. Have you the map before you, plate 32? I note that the first color referred to in the soil key is a light green indicating clay. It is shown on this soil map that practically all the territory served in west Des Moines is of that character of soil.

595 Objected to as a misstatement of what the map shows.

Q. Isn't that true?

Same objection.

A. No, sir; that is not true.

Q. Let me ask you this, I notice the green shading extends north to a point on this map where Hickman Avenue is shown. I *with* you would tell the court just where Hickman Avenue is located, how far north from the court house?

A. I don't find Hickman Avenue.

Q. Up near St. Joseph and Francis Avenue you were telling about. Immediately west of that point.

A. Court Avenue up to that point is pretty close to two and a half miles I would judge.

Q. Wouldn't you think it was more than that to Hickman Avenue?

A. From the court house?

Q. Yes?

Judge CARR: You include the distance north and then the distance west?

Q. No, I want him to tell the distance north from the court house. You know of course where Union Park is in east Des Moines?

A. Yes, sir.

Q. If Hickman Avenue were produced east to Union Park it would correspond with about the north end of Union Park would it not?

A. Just about.

Q. The map shows outside of the four red blotches indicating rock formation and aside from the plot in the dark green and a little spot where it indicates water near surface, all of that original territory acording to this map indicates hard clay?

596 A. Practically the west side with these few exceptions.

Q. Now take the hard clay that is indicated in this soil key by the dark green square isn't it?

A. Yes, sir.

COURT: You mean by that hard pan?

A. It is joint clay, hard.

Q. This hard clay, is that what you call gumbo, that what you have referred to?

A. No, sir.

Q. Where is any gumbo indicated on this plate key or on the plate irself?

A. There is not any. That is my term for it sir.

Q. Well this dark green shaded on this soil map extending from the south side of University Avenue down to Crocker street and in an irregular manner down as far as Woodland cemetery, that is hard clay?

A. Yes, sir.

Q. Just west of the point to which I called your attention on University Avenue, commencing with the south side of University Avenue south of Kingman Boulevard and from about 33d street to 38th street is shown on the plate to indicate water near this surface, is that right?

A. Yes, sir.

Q. Well, didn't you say that that would depend upon the character of the weather and the season of the year.

A. Largely so.

Q. You don't mean to say that by going out there as shown on this map and excavating three or four feet that you will always encounter water.

A. Not always, because your drainage system will change that.

597 Q. The city has installed a system of sewers in that part of the city in the last four or five years?

A. Some parts of it.

Q. A sewer in Kingman Boulevard that was constructed about three years ago and a number of lateral or branch sewers out in that part of the city?

A. A good many of them.

Q. A change of the surface waters and practically all of them drained into this system of sewers.

A. At present.

Q. So you would not encounter any difficulty with water in the vicinity shown upon this map would you at this time on account of these low conditions?

A. Not at this particular time you would not, that is in that locality.

Q. East Des Moines aside from the green shading indicating hard clay in the vicinity of the capitol is practically all sandy loam isn't it?

A. There is quite a portion of it is sandy loam.

Q. Well aside from some shading shown on the map near the east end of the district of fine sand and the shading from this red spot indicating rock near the capitol building the balance of it is supposed to indicate sandy loam isn't it?

A. Yes, sir.

Q. There is no difficulty encountered is there in excavating in that kind of soil?

A. Sometimes there is.

Q. What is the nature of the difficulty?

A. The nature of the difficulty is because it requires a good deal more protection to keep your ditch from caving in and
598 you have got to use considerable more precautions in your thoroughfare and hauling in material and everything of that sort.

Q. Have you very much of this distribution system in south Des Moines?

A. Well, we have some, yes.

Q. How much?

A. What do you call south Des Moines.

Q. Well I call that territory all that part of the city of Des Moines lying south of the Raccoon river and including that part which lies south of the Des Moines river in southeast Des Moines formerly Sevastopol?

A. And how far south?

Q. To the city limits, I would call that south Des Moines.

A. We have practically over there I would say making a rough guess at it possibly about four or five miles, that includes Clifton Heights.

Q. Yes, Clifton Heights. Is the rock which you have described in these three or four different sections of the city, is it loose rock or is it in a lodge?

A. Portions of it you might say is shale and other portions pretty solid.

Q. And in what manner is it removed from the trenches?

A. We use picks, sledges, wedges and bars.

Redirect examination by Hon. GEORGE H. CARR:

Q. You have been asked with regard to the services in Des Moines. Do you know how many services the Company has in the city of Des Moines?

A. Since I have been connected with this company I have
599 laid and relaid 17,786 services.

Q. You say have laid and relaid, what do you mean by relaying?

A. Where there is a record of the service we never take another record but that service has been enlarged. Therefore we do not take the record of it. The record shows for itself and we do not make a new one in a great many instances.

Q. Where you have relaid services were those services that had been laid before your time?

A. Yes, sir.

Q. So that you have actually laid this number of services that you have given although some of them was relaying services that had been laid before your time, is that correct?

A. Yes, sir. I don't think there is but very few services in town but what have been relaid.

Q. You have been interrogated with regard to extra mains on Court Avenue. Do you know the reason for laying the additional or extra mains on Court Avenue?

A. Yes, sir.

Q. You may explain to the Master the reason for it.

A. It was absolutely necessary to get more pressure out towards the fairgrounds and Grandview additional to the system and it was necessary to lay mains to get to the extreme far point so that they could increase their pressure at the low points. As I said before that main did not intersect with anything until it got to 15th street.

Q. The main I think you said was an eight inch main part of the way.

A. Yes, sir.

Q. Part of the way three inch.

A. Yes, sir.

600 Q. Part of the way four inch.

A. Yes, sir.

Q. That main was not of sufficient capacity to carry gas on beyond the locality where it was laid, is that it?

A. Yes, sir.

Q. It was sufficient to serve the customers along the line of the main?

A. In a sense, yes.

Q. But not sufficient to do that and carry the additional amount of gas that was necessary to serve persons beyond and furnish sufficient pressure?

A. No, sir; it was not.

Q. That is why it became necessary to lay this additional main?

A. Yes, sir.

Q. Now aside from the one instance which I think you have spoken of as a main being under the street car track, aside from that instance is your answer true as to all these duplications of mains that they were laid on account of and for the purpose of getting additional pressure?

A. Yes; it had to be done, no use talking they was compelled by lack of pressure.

COURT: If I understand you correctly these mains were laid in order to furnish sufficient capacity to carry gas where it was wanted for use?

A. Yes, in order to help out the small mains in supplying the demand that was called for on them. The smaller mains could not fill the demand. These larger ones were run around so as to feed the smaller ones so they could take care of the consumption.

Q. With regard to the high pressure main going to Val-
601 ley Junction you have spoken of some service connected with that main. Is there any mains tapping or connecting with the high pressure mains in Des Moines?

A. Not to my knowledge.

Q. Let me call your attention to 51st street and ask you whether there is not a side main or branch main on 51st street?

A. That is under the same system. That is under the high pressure system. I understood you to ask me if that was connected with any mains in the inside of the limits.

Q. I asked you whether there are branch mains leading off this high pressure main in Des Moines?

A. One.

Q. And where is that located?

A. 51st street south of Grand.

Q. What is the fact as to that branch main serving customers in Des Moines?

A. It does.

Q. Do you know about how many?

A. I would judge somewhere about 15.

Q. From 42d street west on the high pressure main on Grand Avenue and south on 56th street isn't it true that practically every customer in there is served from service connecting with the high pressure main?

A. Not from 42d, from 43. There is no consumption off of the high pressure system until you get to Greenwood park, then west from there it takes care af all consumers, but nothing east of there.

Q. You speak of Greenwood Park, what street is that?

A. On Grand Avenue.

602 Q. But the north and south street?

A. Well that would be I think about 46th, possibly 48th.

Q. You spoke of 43d street.

A. That is where the low goes, and we have a low pressure main on Grand Avenue west of 43d, which takes care of all consumption on Grand Avenue west of that point until you strike 46th or 48th of Polk Avenue, whatever it is, Polk Boulevard.

COURT: Is that where Greenwood Park is?

A. Yes, that is the entrance.

COURT: That is 46th street?

A. I think it is, 46th or 48th. Then the high pressure system takes care of the consumption from there west.

Q. To get the matt-r clear I wish you would state just what customers in Des Moines receive gas which comes through the works for a distance at least through the high pressure main that you have spoken of, that is jus*y* how many, I don't -ean name them, but how many of them there are and if you can't give the number give

the territory fully a comprehensive statement that is served by this high pressure main?

A. There is three served on Ingersoll Avenue, then on 43d street between Ingersoll and Grand I judge about six or seven then the waiting room at Greenwood Park or where the car turns, one in Greenwood Park, in fact the majority of the houses from there along the line to 53d street including 51st and 56th.

Q. Does this high pressure main serve a low pressure main on 63d street?

A. No, sir; it does not. Let me answer that again a little different from that. You wanted to know if this high pressure served
603 a low pressure main on 63d. Well it does and does not. It first goes to the governor controlling Valley Junction and then comes back on 63d for a short distance only that if south along the city limits between the Junction and Des Moines.

Q. So it is true that the gas that goes from the works through this high pressure system reaches in the way you have described the consumers in Des Moines on 63d street.

A. Yes, in Des Moines.

Q. Is there any advantage to the consujer in receiving his gas in this way through the high pressure system? By that I mean would *be he* served as well if he simply received his gas off of the low pressure system.

Objected to as incompetent and th- witness is not competent.

A. There is -ractically no dif-erence that I know of that is to the consujer.

Q. How about the pressure, will the pressure be the same?

A. Well no, because they check that pressure with the governor so they make it under a low standard.

Q. Could the consumers which you have spoken of as being served by this high pressure system, could they be served by the low pressure system?

A. Not in the locality in which the low pressure mains are and they live.

Q. Could you serve these customers, give them as good service as they are getting now, by extending your low pressure mains into the loaclity on account of the distance?

A. Well you could under certain conditions but I doubt whether you could und-r the present conditions as they exist. If
604 you could extend your mains und-r the low pressure system at the present time, I doubt whether they would be served as well as they are under high pressure.

Q. You were asked about the service, the size of service before the standard adopted in 1896 which I think you said was one and one fourth inch pipe. Now what is the fact with regard to these old service being still in use or have they been replaced by the standard service?

A. Well in nearly every instance they have been replaced. I doubt that there is very few old services in use today. If there is I don't know of them.

Q. You were asked concerning the depth of the trenach which was the standard in laying mains. I wish you would explain to the court how you figure the measure of four feet, whether that is from the top of the main or how it is?

A. That is from the top of the surface, surface of the ground to the bottom of the ditch or bottom of the pipe. My instruction are I must have three and a half feet of covering on all mains. The mains vary in size and necessary to vary the depth of the trenches, but I am governed from the fact that I am requested to have a certain amount of filling or covering on yop of the mains. Therefore we make a standard of four feet because we lay principally four and six inch pipe; a four foot trench will make you practically three and one half feet of covering.

Q. When you have larger size like the ten or twelve or sixteen or twenty four inch main, then what is the depth of your trench?

A. You have got to excavate proportionately to the size of your pipe. You are governed from the top of your pipe in regard to its cover. The size of the pipe will govern the depth of your
605 trench.

Q. Then from the top of the pipe to the surface of the gtound is how much?

A. Practically three and a half feet. We make that as a standard.

Q. Then the depth of the trench depends of course on whether six inches is enough to lay in your pipe.

A. On the size of your pipe.

Q. When more than six inch you have to go deeper than four feet?

A. Yes, accordingly.

COURT: Is that true when you go through rock?

A. Yes, or anything else, water or anything. We aim to keep that as a standard. Oh we might vary from it in some instances but not very much.

Q. You were asked as to the average length of the services and stated that it was your judgment the length that they would average about seventy five feet. Now did you include in that estimate the length of the service inside the building between the service T or tie and the meter?

A. I didn't go any farther than inside of the wall up to the meter, that is as far as I go and as far as these measurements have any jurisdiction over. Then beyond the meter I know nothing of whatever.

Q. Did you include in your seventy five foot estimate the pipe that you put up inside of the building that takes the service to the meter?

A. No, sir; I only included the length of the service from the inside of the wall to the main.

Q. In laying mains do you have to give any attention to the quesyion of drainage? What I mean to ask you is do you have to lay your main to a given grade?

A. Yes, sir. Well not exactly to a given grade. That is
606 one thing that governs the laying of mains and one of the most principal points in laying mains is to get your fall, your levels correctly so that the low portions can take care of condensation or mishaps that might come over the main where water might accumulate.

Q. Is or is not it true that in laying mains you cannot in all instances follow the line of the surface of the ground.

A. Don't make any pretention on that.

Q. As you cannot do that what is the result with respect to the depth at which you have to go at times?

A. Well we have to go largely, in order to get our fall properly, in a great many instances, there is not any extension practically speaking, I don't think I can name one now where we run except the fair ground where you could run on an average direct for the full extension let it be long or short.

Q. To make that clear if you were laying a main beginning at a given point to another *fiven* point as I understand it at no place do you make your main less than four feet deep or whatever is necessary to give you three and a half feet over the pipe.

A. Oh that might vary from that a slight item only we aim to follow and keep in mind very strongly the question of covering have that in mind. We vary of course in getting our fill, don't limit exactly to three feet and a half the cover, but very closely.

Q. Suppose in the case you speak of you came to a rise in the surface of the ground between two points. What would you do in that case, came to a little knoll or little hill or little rise.

607 A. That depends on circumstances, if low on the other side of that knoll and *the* necessary to make a low point there, we would follow the elevation of the surface, but if that low was not there we aim to cross the hill and establish another low, then we would go through on a level so as to have out flow back to the starting point.

Q. Is it true in laying mains you have frequently points that because of the inequalities of the surface that you are required to go considerably deeper than the depth that you want to get the proper covering for your pipe?

A. That happens on almost every extension more or less.

COURT: As I understand you it is necessary to provide drainage points for your pipe.

A. Yes, sir.

COURT: Water will accumulate?

A. Yes, a certain amount of condensation or in case your main breaks to let in surface water you have to have some place to ger it out.

COURT: Water accumulates outside or inside?

A. Inside. Condensation will accumulate, not largely, but sometimes necessary to use that.

Judge CARR: If the court please I shall probably want to further examine this witness a little later on on a matter that I don't know

he has investigated. But for the present, that is all I wish to ask him.

Recross examination by R. O. BRENNA-, Esq.:

Q. I understood you to say that you were not familiar with the Qressure at which the gas was furnished?

608 A. Not as a whole, no sir.

Q. When I asked you about the pressure at which the gas was furnished to Valley Junction through this high pressure main you were not able to tell me?

A. No, sir; I don't know a thing about that.

Q. You say now that the purpose in duplicating the mains in the places where you have described was to supplement the pressure from the works. Now that you are simply stating from something that has been told to you by someone else, isn't th-t true?

A. No, sir.

Q. You are not a gas engineer?

A. Well but it does not take a gas engineer to -ind out these things.

Q. Are you a gas engineer?

A. No, sir.

Q. Are you familiar with the pressure at which gas must be furnished?

A. I am familiar with the pressure that is necessary to furnish consumers with a reasonable amount of convenience.

Q. Now what is the pressure used in the six inch main?

A. A six inch would carry the same pressure practically, might carry the same pressure all the time in any of the mains.

Q. Well what is that pressure?

A. I think now they are carrying what they term—I don't know whether they are carrying thirty six or forty tenths.

Q. In the entire system?

A. In all of their low pressure systems. That is in the down town. Bear in mind that same pressure does not travel out to the extreme ends, especially in these extreme ends be lower

609 than the works here.

Q. There would be some loss in the pressure as it reached the end of the distribution system?

A. Considerable and the amount of consumption that is between there.

Q. This main on east Court Avenue extended at least to 12th or 13th street did it not?

A. 15th street. That is the 16 you mean.

Q. No I mean the first main, original main?

A. Yes, sir.

Q. I understood you to say it went out as far as 12th or 13th street?

A. Yes, sir.

Q. When you put in this second main it extended up to substantiall- east 16th street?

A. Yes, sir.

Q. How many dead services are there in this system, are you able to tell us?

A. I could not tell you that.

Q. About how many?

A. I could not tell you, could not say at all, don't know the amount of meters in.

Q. Have you any record of it?

A. No, sir; I have not. That is out of my jurisdiction.

Q. You told Judge Carr did you not that since you have been connected with the company as its foreman that you have either installed or replaced some 17,786 services.

A. That is exactly what I did.

Q. You did that without any hesitation, you knew the num-er?

A. Yes, sir.

610 Q. Well now what is there about the dead service that causes you to hesitate and say you can't tell us?

A. Well I will tell you, I don't know anything about the consumer on the other end. I end as soon as I get inside the building. I can't say to you positively from my own knowledge that there is any other live one except the one I use myself. I have no access, it is beyond my station.

Q. So when you stated to Judge Carr you had installed or replaced 17,786 services you did not mean to be understood as saying there were that many services in use in the city of Des Moines?

A. No, sir; I didn't say that.

Q. You didn't want to be understood as saying that?

A. No, sir. I didn't say they were in use.

Q. It is a fact is it not that on this high pressure main that there is ser*b*ed thereby some fifteen consumers up to between Forty First and Fifty First street?

A. I can't say how many there is. All the consumers there is on 43d street between Grand and Ingersoll and all that is beyond Forty Sixth street is taken care of off of the high pressure.

Q. And there is a branch main that is served on 51st street from this high pressure main?

A. Yes, going south.

Q. Now can you tell the court say within the past five years, that is from 1905 up to 1910 about how many blocks of mains were laid by you or under your supervision in the way of extension work?

A. No.

Q. In round numbers?

611 A. No, I could not tell you.

Q. Can you tell us approximately?

A. No, sir; I could not.

Q. Have you looked that up at all?

A. No, sir; I don't keep a record of that at all, it is kept in the office.

Q. You make up the original record do you not?

A. Yes, piece by piece.

Q. I u*b*derstood you to say this morning when you were engaged in station work you kept track of the labor and material and then when the job was completed you made a report to the company?

A. I did.

Q. You have been doing that since your connection with the company?

A. Yes, sir.

Q. Now I wanted to know if you could tell us approximately the amount of extension work which you did, say five years preceding 1910?

A. No, I could not because I have not paid any attention to it particularly, I don't know how fast they have increased. I could tell you possibly some years where I took particular pains in nothing it down.

Q. Take the year 1910 and in what portion of the city were you engaged principally in making extensions?

A. Well we was all over the city. I don't think any portion of the city we didn't cover by some extension.

Q. You were not in the business section of the city were you?

A. No, sir.

Q. You were not in the older residence sections of the city were you?

612 A. We keep branching out.

Q. You were in the outskirts of the city were you not, more or less during the year 1910?

A. I don't know of any downtown work we done at all in 1910.

Q. Take for instance out in Highland Park Addition, out in that section of the city and about 44th street north of Ingersoll, Avenue and up as far as University and up as far as Kingman did you do considerable work in that section of the city in the way of extension in the year 1910?

A. We did considerable up there, I don't know whether we did all in 1910 or 1909.

Q. You did considerable work in extensions in that section of the city.

A. Yes, sir.

Q. Now what other portions of the city did you work in during those years?

A. I think it was in 1910 we went over southwest Ninth street, either 1909 or '10 I would not be positive of the years, right lately anyhow.

Q. How many blocks of main did you put in there?

A. Well there are of that extension I think there was somewhere about two and a half miles, something like that.

Q. That was 1909?

A. Either 1909 or '10 I would not be positive which year, around that.

Q. Do you have in mind any other parts of the city in which you made extensions?

A. Oh we made extensions practically in all parts, We was out towards the fair grounds, we was up in Grandview, on some out in Highland Park, out in the northwestern part of town on

613 some and some in between here and there.

Q. Does your mains extend as far south as the Army Post?

A. No, sir.

Q. Do they go as far south as the city limits?
A. No, sir.
Q. How far south do your mains extend on southwest Ninth street?
A. The next block south of Park Lane or Park Avenue. One block south of that.
Q. You would not be able to tell us the number of miles of main you constructed within the five years?
A. Oh no, I would have to guess at it year by year practically, I don't keep any record of that.
Q. All extensions you have made on behalf of the company a record was kept of the same?
A. Yes, sir.
Q. And that record was made by you?
A. As I showed you this morning this sketch was turned over by me.
Q. Did you bring that copy of the sketch?
A. No, I did not.

Mr. BRENNAN: As part of the cross examination of this witness the defendant will offer in evidence defendant's exhibit No. 2.

Judge Carr asked you about digging your trenches for your mains ans as I understood you to say you endeavored to have about three feet and a half from the surface of the ground to the top of your main or covering?
A. Yes, sir.
Q. And that in some instances you were required to *fo* a little lower than that perhaps depending upon the topography of
614 the country.
A. Yes, sir.
Q. The water which you speak of, you don't mean to be understood that any water from the outside of the main reaches the inside of it?
A. Well in certain conditions, yes.
Q. Aren't the mains thoroughly caulked?
A. Yes; but then accidents might overtake a main, it might break or a service pull out and a service fill with water and then the water fill up the main and we would not have any access to remove that stoppage.
Q. You have these drainage points established along the line of the distribution system do you?
A. Yes, sir.
Q. Is there any uniformity about the location of these stations, or do you use your own judgment in putting in mains?
A. The condition of the territory in which we are in governs the amount and distance between them.
Q. If you are placing a main in 19th street for instance from Woodland Avenue north to Cpttage Grove Avenue, you follow the slope of the hill there and aim to keep the bottom of your t-ench about four feet below the surface?
A. Yes, sir.

Q. That is the idea?
A. Yes, sir.
COURT: Do you do your own leveling or the engineer?
A. I do.
Q. What do you mean with respect to the placing of your main in the trench about having it on a slope?
615 A. Well it has got to have a fall, we term a low place, got to have drainage back to that low place, raise our pipe from that low place until it gets a certain depth or thereabouts and then tip over into another low place.
Q. That is one of the drainage stations you speak of?
A. That is what we call a pumping point, set a drip well there.
Q. Now for instance you have got a main out Woodland Avenue to 19th street, suppose you wanted to extend up 19th street to Cottage Grove this drip station would be 19th and Woodland?
A. No, sir; not necessarily, Woodland draining back. As long as you drain it back, we prevent as much as possible all these low points.
Q. In forming one of these places you may have to go below the natural depth of your t-ench?
A. Yes, sir.
Q. The t-ench proper you aim to keep that as uniform as possible about four feet below the surface?
A. Yes, sir.

Redirect examination by Hon. George H. CARR:

Q. What is a main drip pot?
A. It is a piece of cast iron, I suppose it is cast on a mould. It is a hollow piece of cast iron of various sizes, some of them pretty large and some of them very small.
Q. What regulates the size?
A. The size of the line in which it is in.
Q. Size of the main?
—. Yes, sir.
Q. What are those used for, why are they placed?
616 A. Where are they placed, they are placed in the low point that is necessary to be formed so as to take care of the condensation that might arise inside of the main or accidents occur where the water might get into the main so that we will have access pumping them out without tearing up the main or streets.
Q. How are they attached to the main?
A. They are formed the same as a double hub fitting. They are set in the main, have a deep hole and set them below the main and attach them to the main the same as you do one joint fitting the other, only a double hub you have got to have the spigot both ends. Cut the bell off the pipe because a bell — already on the box or well. On the other end you can start right off of that, that spigot piece and go ahead again with the main.
Q. What is the bell on the pipe?
A. That is where they join together, larger so the small pipe go into the large one so you can make a joint.

Q. Drip pots are made of what material?

A. Cast iron.

Q. Are these placed whereever there is a point to which the drainage comes?

A. As far as in the center of the line is concerned. If the drainage comes to a dead end or where the pipe stops we don't set them until we continue that line to a place where it is a raise again.

Q. You have said something about the pumping station, pumping apparatus. Do you have a pump wherever you have one of these drip pots?

A. No, sir; not altogether, have it prepared for a pump so in case there is trouble in certain localities which might possibly
617 be in the drip, then we can pump out as I said before without disturbing the streets. We connect a pump point with these dri- boxes, run it through the curb and leave it above ground so to be accessible at any time.

Q. You speak of trouble, what kind of trouble?

A. There is a good deal of trouble in the gas business, various troubles.

Q. This particular kind of trouble?

A. This particular kind, as I stated before condensation may form and it will run back to this low place and stop the flow of gas on that particular line or a service may pull out by expansion or contraction, the main may crack, be some connection cause it to have a little crack and should the point be in water it will naturally run back to the low point and it will fill the main and shut off the consumption beyond that.

Q. When the main at this low point fills with water the gas of course won't pass there.

A. No, sir.

Q. And that shuts off the supply of gas beyond there?

A. Yes, sir.

Q. And if partly filled it interferes with the flow of the gas?

A. Breaks the pressure, interfers largely with the pressure.

Q. That is the trouble and the experience makes it necessary to pump out the fluid or water from the pipe, that is correct is it?

A. Yes, sir.

COURT: You have a regular pump in there or do you insert a pump.

A. We insert a pump.

COURT: Take off a cap.

A. Yes, sir.

618 Q. Do you now have in mind the number of these drip pots that you have on the system?

A. Very close.

Q. Well would you undertake to give an approximation of the number?

A. Well my best recollection right now we have got somewhere about 160 of them in various parts of town. I don't mean that. I mean we have about 160 of 165 pumping points, but they are not all drip holes.

Q. There is about one hundred and something pumping points?
A. About 160 or 165, somewheres about that neighborhood. I would judge outside of that there is somewheres about close on to 80 or 85 holes.
Q. You personally know where all of these are located do you?
A. Yes, sir.
Q. Is there more then one kind of drip pot?
A. There is several different kinds.
Q. In use by you?
A. Yes, sir.
Q. I wish you would explain briefly the different kinds that you use?
A. Well there is one kind in use where it sits in the main, the main goes direct through the pot, in a sense the main does not but connects as I said before to the bell each side the drip well. Then there is what is called the side pot, that is set off to one side, a small pipe connects with a little place in the main and that pipe then back to a point there with the pot. Then another one what we call a home manufacture where we take a special and turn it upside down and
form that by putting a piece of pipe below so it forms the
619 same thing as a drip well.
Q. Do you have in mind the different sizes of line drip pots that you have in use?
A. Yes, sir.
Q. I wish you would state to the Master what sizes?
A. We have four inch, six inch, eight inch, ten inch, 12 inch 16 20 and 24.
COURT: In other words have them corresponding with the size of your pipe?
A. Yes, sir; always.
Q. Do you recollect whether you have some three inch drip pots on three inch mains?
A. Not to my knowledge. The three inch is what we term a side pot as explained before, the main is tapped under the low point and the water run into that and then pumped out of that. It is not a line drip.
Q. You make a distinction there on the three inch?
A. Yes, sir.

Recross-examination by H. O. BRENNAN, Esq.:

Q. What are the weights of these line drip pots?
A. They vary. A four inch, a standard drip box will weigh about 260, pounds, some of them be heavier tha- that.
Q. Cast iron?
A. Yes, sir.
Q. Average about 260 pounds, four inch?
A. Yes, sir.
Q. Take a six inch?
A. Six inch weights about 360 *ro* 400.
620 Q. Eight inch?
A. Eight inch runs about 500.

Q. Ten inch?
A. Ten inch runs about 650.
Q. 12 inch?
A. 12 inch weighs about 700 pounds.
Q. 16 inch?
A. Sixteen I think weighs about 1300 and some pounds.
Q. Twenty inch?
A. Twenty inch weighs about 14 to 1500.
Q. Twenty four inch?
A. Weigh just about a ton.
COURT: Old fashioned ton.
Q. Are some of these mains of wrought iron that are used in the system?
A. Very little.
Q. All of your three inch mains are principally wrought iron?
A. No, all three inch is cast iron. No three inch wrought iron except service connection.
Q. Do you have any wrought iron in the distribution system proper?
A. I don't know whether you term it wrought iron or not, we term it tissue paper, you can call it wrought iron if you want to, supposed to be manufactured of steel of some description pretty thin.
Q. Rolled steel?
A. Yes, sir.
Q. It is not cast iron?
A. No, sir.
621 Q. In what size do cast iron mains come?
A. Two, three, four six, eight, ten, twelve, fourteen, sixteen, twenty and twenty four is all we have.
Q. How much wrought iron pipes or mains are in use in this system of you know?
A. We have got a piece on Second street from Court Avenue to that alley or street where the Belt Line turns down?
Q. Commercial street?
A. Commercial street. Then we have got a little piece across southwest Ninth street, eight inch. This other is six down here.
Q. How much of this pipe or main is what you term tissue paper?
A. This six inch down on Second street.
Q. And this on west Ninth?
A. This is better quality.
Q. Wrought iron?
A. No, it is steel I think, rolled steel.
Q. The balance of the system is principally of cast iron.
A. Yes, sir.

Redirect examination by Hon. GEORGE H. CARR:

Q. You say the balance of the system, it is all cast iron isn't it?
A. No, sir.
Q. Except what you have spoken of?

A. Some inch and a quarter, inch and a half and two inch that is wrought iron?

Q. Did you state what material these drip pots were made of?

A. Cast iron.

622 E. P. WALTER being recalled for further cross examination by R. O. Brennan, Esq., testified as follows:

Q. Since you were on the witness stand this morning, have you investigated the records of the gas company to ascertain the number of miles of mains it had in its distribution system in the year 1874?

A. No, sir.

Q. You say you have not?

A. No, sir.

Q. Have you made any investigation along that line?

A. No, sir. I have the records that will show that data.

Q. Have you looked over the records since they have been produced in court for the purpose of ascertaining the number of miles of mains?

A. I have looked over the records to see that they were the records, the originals or copies of the records which I originally saw from which the report was made up.

Q. Have you a record there for the year 1904 showing the distribution system of the Des Moines Gas Company?

A. Yes; have a record of the authorizations for the year 1904 fo the street mains to be laid.

Q. You mean by that the street mains extensions?

A. Yes, sir.

Q. 1894?

A. Yes, sir.

Q. What does that record show as to the number of miles?

Objected to as incompetent, the record is the best evidence.

623 A. These records are authorizations issued in Philadelphia to the Des Moines Gas Company to lay mains on certain streets giving the size of the main and the length of the main.

Q. They have a record have they not of the amount of mains in existence say up to the first day of January 1894, or up to the 31st day of January, 1893, that is the aggregate number of miles of mains in existence at that time?

A. I don't think the company has any such record.

Q. Didn't you find it in making up this inventory?

A. No, sir. My inventory is made up from records of the office as given by years.

Q. You could tell by going over the year 1894, couldn't you, how many miles of mains were constructed in that year?

A. By going over these records, yes.

Q. Was there any account kept, any regular construction account or otherwise showing the number of miles of main each year in existence?

A. I am not sure, I don't know about that.

Q. Now what records did you examine in making up this inventory for the purpose of ascertaining the number of miles of mains that this company had up to and including the last date shown on your inventory?

A. I examined the maps of the Des Moines Gas Company which they have prepared and post as a main is laid on a street they mark it on this map. Also the sketches of these mains are made for work as completed and also these authorizations that I speak of, orignal authorizations for laying the main?

Q. Did you verify the map which you took as standard for making your inventory?

A. Yes, sir.

Q. And in what way did you verify the information shown on the map.

A. I verified it from the sketch books and also from these
624 authorizations.

Q. Do you mean to say that in order to make this inventory and in order to tell the court the number of miles of mains that the company had in 1894 that it is necessary to go through all of these sketches?

A. To get the miles of mains laid in the year 1894, no sir.

Q. How would you get it?

A. I would go to the authorizations and take the authorizations that were issued in 1894 or time previous to that and see when they were laid and take the sum total of those.

Q. Haven't you any composite record of the number of mains in existence, say January 1, 1894, to which you could turn and find out just the number of miles that were in existence at that time?

A. No, sir; I have not.

Q. Has the company to your knowledge?

A. I don't think so.

Q. Did you inquire for such record in making your investigations?

A. No, sir.

Q. In placing upon the inventory the number of miles of main which you show there how far back did you go into the records?

A. Through all the records which the company has.

Q. How far back did that extend?

A. Goes back as far as 1886 beginning with January 1887.

Q. That was your place of beginning, January 1, 1887?

A. Yes, sir.

Q. Right at that point, how do you know the number of miles of mains that the company had at that time, what record was there to show that?

A. We have an old record prepared in the 90s I think
625 some time, by Henry Moul of the mains in the ground as he knows them, or knew them to be.

Q. That was made in 1890, you say?

A. In the early 90s I would say, 1890, might have been '92 or '93.

Q. That is not exactly an answer to my former question. The

question was, when you started on the first day of January 1887, you gave the company credit for having so many miles of mains did you not?

A. Yes, sir.

Q. Where did you get the information that they have that number of miles of mains to place the same in your inventory?

A. I used the map as exhibits 17 and 18, and from these maps I deducted all the mains laid since January 1, 1887, that left the mains as there shown in plate 30 I think it is.

Q. This map, Exhibit 17, was made up after or during the time that you were making your inventory was it not?

A. This plate 30 is an exact copy of the map we used at that time.

Q. You started out on the first day of January 1887.

A. Yes, sir.

Q. You say you had a record up to that point of the number of miles of mains in the distribution system of the Des Moines Gas Company?

A. No, sir; I have not.

Q. Didn't you give them credit for that amount somewhere?

A. Yes, sir.

Q. Where did you get that information that they had that number of miles of main?

A. I stated I got it by deduction from the total number of miles of main in at the present time, I deducted the miles of main
626 that had been laid since January 1887.

Q. That included 1894?

A. Yes, sir; included all the intervening years from 1887 up to the present time.

COURT: You went over each year and got the amount that was laid each year since that time?

A. Yes, sir.

COURT: And where laid?

A. Yes, sir.

COURT: And after getting that then you found certain mains in the list that were not laid during those years?

A. Yes, sir.

COURT: You assumed that these mains were laid before?

A. Were laid previous to that time?

Q. So you can take the year 1894 and by the same process you can tell us the number of miles of main in existence at that time can you not?

A. Yes, sir.

Q. That won't take very long will it?

A. Take quite a little while.

Q. How long?

A. Several hours. I have several books to go over here.

Q. How many books will you have to look over?

A. About three I think it is or four, four of them.

Q. Now Mr. Walter, we would like to have you furnish to us or to the Master, as part of your cross examination a tabulated statement showing the number of miles of mains in the distribution sys-

tem of the Gas company on the first day of January 1895, that includes the year, 1894.

COURT: In making up this tabulated statement show the
627 size of the main and where laid for each year and the length?

A. That is going to take considerable more than a few hours.

COURT: You need not take the streets and the size and length and the year it was laid in.

Judge CARR: If it shows the mains, where laid and size, and the total we would like to have the statement cover that. It will save time while he — doing that and we would like to have him make it up in that way.

COURT: Yes, it will save time.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

628 Thursday Forenoon Session.

JULY 20, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

HENRY MOUL, recalled for further re-direct examination, examined by Judge George H. Carr, testified as follows:

Q. When you do the work of laying mains, after the work is completed, you make a return to the office showing the amount of pipe you have laid and the length of the pipe, all the details with regard to it?

A. Yes sir.

Q. Do you know whether there is any other record of the Company that shows those things except the record that is made from the data furnished by you?

A. No, sir.

Q. You don't know or there is not?

A. I know there is not.

Q. Are you familiar with the records of the office and have you gone over them and compared them with the records of the data as furnished by you?

A. Yes, sir.

Q. Now, in furnishing this data for the record, the data furnished by you are true and correct?

A. Yes, sir.

Q. Are the records made from that data to your personal knowledge a correct record?

Mr. BYERS: I don't know whether the witness is competent to state that or not.

629 A. Yes, sir.

Q. Now where you use the drip pots, is the same thing true, that you make a return to the office of the drip pots that you use?

A. Yes, sir.

Q. And are the records of the office made up from your return in respect to those matters?

A. Yes, sir.

Q. And have you gone over those records and are you familiar with them?

A. Yes, sir.

Q. Now, in making your returns as to those drip pots you use in the system, those returns made by you, were they correct and true according to the facts?

A. Yes, sir I think so.

Q. Were these records as compiled from your returns, are they correct records of the fact?

Objected to on the ground that the witness is not qualified upon that proposition and is incompetent to testify with respect to it.

A. Yes, sir.

Q. In speaking of drip pots, you said yesterday something about some kind of pots that was different from others; some you spoke of as line pots, and some where they were put to the side; what term do you use to designate those?

A. No other term, except I call one side pot and the other line pot.

Q. On what size mains are those side pots used most generally, if on any particular size main?

A. On the three inch.

Q. Are all the pots, or drip pots on the three inch mains placed at the side instead of under the line?

630 A. In our system yes, sir.

Q. And on the other sizes, how is it?

A. We have two on six inch lines, on side pots, and all the rest of them are on line pots, practically speaking.

Q. Now, in the Company's records, do you know whether side pots, as you speak of them, are classified and designated as line pots?

A. I couldn't say how they are specified; I think they are all called drips.

Q. Mr. Moul, I will ask you to take Exhibit No. 15 and turn to page 209, under the head of Mains in Ground. You find there the various sizes of mains indicated in the first column, and the length of the several kind of mains indicated in the second column. Do you know Mr. Moul the length, basing your answer now on your personal knowledge, from having these mains; do you know and are you now able to state the number of feet of each of those several kinds of mains which the company has in its system here in Des Moines.

A. Yes, sir.

Q. Starting at the bottom of the page, the largest size main shown there is a 24 inch main; we find in the inventory 1,180 feet; do you know how that length is ascertained; how the measurements were made for the purpose of getting that length?

A. Yes, sir.

Q. How?

A. I took the number of pipe laid and pieces of lengths—all lengths of pipe are 12 feet. Then I take the pieces of pipe and in-

clude that in my return. I show how many feet of pipe I have laid. After a line is laid I take an over-all measure, measuring, and including the drips, specials of any kind, T's or crosses, and I show both the number of feet in the pipe and trench.

631 Q. Is this 1,180 feet an over-all measurement?

A. Yes, sir.

The MASTER: How is that measured now; does that include the cup at the end?

A. The over-all measurement includes all from the beginning point to the end.

Q. Do you know from your personal knowledge how many feet of main, measuring the pipes separately now, and not as an over-all measurement, how many feet of 24 inch main the company has in its system in Des Moines?

A. Yes, sir.

Q. You may state to the court how many feet?

A. 1,172.

Q. Now, do you know whether the difference between the 1,180 feet, as shown in the inventory, and 1,172 feet, is accounted for by the difference in the over-all measurements and the measurements of the pipes separately and totaled.

A. Yes, sir.

Q. How many, if you remember of these specials have you in these 24 inch mains?

A. Three specials.

Q. And how large are they and where are they?

A. What space do you mean they take up in the line?

Q. Yes.

A. Two feet.

Q. Each takes up two feet?

A. Yes.

Q. Where are those specials?

A. One of them is on Court Avenue between First and Second: one at the intersection of Court Avenue and First; and the

632 other in the intersection of the river pipe on First street.

Q. Can you tell the court where these 24 inch mains are laid?

A. Yes, sir.

Q. I wish you would do that in detail.

A. There is a 24 inch on the south side of Court Avenue from Second to First. On First Street from the south side of Court Avenue to the river pipe, south to the Rock Island Railway and across the river to intersect to the main leading from the governor of the works.

The MASTER: Is it laid under water across the river?

A. Under the water about 6 feet.

The MASTER: What is the length of that across the river?

A. 640 feet.

Q. I wish in that connection you would explain to the Master how those 24 inch pipes are laid in the river and in that connection also how the 16 inch pipes and 8 inch pipes are laid. Go on and give

him in your own way a full statement of just how that work was done.

A. The 24 inch is laid between two rows of piling, six feet apart each way. In between the piling we put a coffer dam and we run a trench about nine feet from the top of the water. On this piling there is timber bolted on to the level of the bottom of the pipe. After the pipe is laid on that the piling is sawed off and a cap put across the top of the piling and bolted to the piling, and that includes the entire distance of the river from bank to bank Every six feet there is two piling and in between those pilings we lay the mains.

Q. How far below the bed of the river are the mains laid if they are laid below?

A. Supposed to be three feet in the lowest pipes. Now
633 that location was given to us by the City Engineer, the depth.

Q. Do you mean three feet from the top of the pipe to the surface of the bed of the river?

A. Yes, sir.

Q. And not from the bottom?

A. No, sir; that is in the lowest point, according to the City Engineer's direction.

Q. So that you have three feet of covering?

A. Yes, sir; in the bed of the river.

Q. Then where you have you- 24 inch mains, you have to go of course two feet lower in the trench?

A. The 24 inch line, that was between nine and ten feet from the top of the water, to the bottom of the trench.

Q. Is what you have said as to the manner in which these pipes were laid, does it only relate to the 24 inch mains?

A. That includes the 24 inch only. Now the 16 inch is laid on the upper side between a row of piling. One line of that piling is supposed to be three foot apart.

Q. What do you mean by the upper side?

A. The up-stream side of the river. It is bolted to the piling twice in every length, with a stirrup around the pipe; the stirrup blocked about that piling, according to the City Engineer's figures it is the same depth as the 24 inch. The one up here at Grand Avenue is not as deep. It is laid in the same manner, excepting that it has timber bolted to the piling underneath the piling, where it only had one row of piling.

The MASTER: Then you have two different lines across the river?

A. Three different lines. There is one 16 inch; one 24 inch, and 8 inch.

The MASTER: All laid in the same trench?

634 A. No, sir; different localities of the river. The 8 inch is laid practically the same as the 16 inch.

Q. Now these places where the pipes were laid and the manner of laying, I mean with regard to their level, was under instructions furnished by the city engineer?

A. That is the depth he gave me, marked it on the piers of the bridge; I was to keep so deep from that mark, and he was there

when the 24 inch was laid several different times to measure the depth himself.

The MASTER: Are these the same lengths all of them?

A. Practically. They vary a little bit. I can give you the lengths, the 8 inch is 673 feet and the two 16 inch lines 1,300 feet; that includes both lines.

The MASTER: You speak about the size of the pipes, what is that measure, within or without?

A. It is the inside measurement.

Q. Can you refer to Exhibit 18 and show the Master on this map if it does show it, the location of these river mains?

A. (Referring to map.) We have a 16 inch just south of the Grand Avenue bridge. Another line of the 16 inch south of the Wabash. Then we have an 8 inch a short distance south of the Rock Island and the 24 inch about 25 feet south of the 8 inch. It shows on there. The 8 inch is about 20 feet from the 24 inch.

The MASTER: There is none across the Coon?

A. Well, the one across the Coon goes across the Ninth street bridge.

Q. While you are there with that map before you, is there a main that crosses the river to Highland Park, on Sixth Avenue, can you point that out?

A. There is a ten inch going over the bridge, under the east foot walk of the bridge.

635 Q. That is a Nelan Arch bridge?

A. That is this Sixth Avenue bridge.

Q. Have you made it clear, just the location of that pipe?

A. It is under the east foot walk.

Q. Is it laid under the bridge?

A. No, sir; on top of the bridge, under the foot walk.

Q. Under the foot walk of the bridge?

A. Yes, sir.

Q. Is there anything peculiar in the method of constructing?

A. Peculiar?

Q. Yes.

A. How do you mean?

Q. You may describe in a general way the construction?

A. It is not out of the ordinary usage; except the fill bothered; the fill bothered us considerably; it went down a time or two and we had to go up there to protect it several times.

The MASTER: I never saw that Grand Avenue bridge.

A. This is the Sixth Avenue bridge. It is something similar as that put over on Walnut now.

Q. Is it street wide?

A. No, I don't think it is. I think it is narrower than the street; I would judge it is.

Q. It is a very wide bridge—two car tracks on it?

A. Well, let me see; I would judge about 40 feet. Yes two car tracks on it.

Q. A drive way on each side of the car track?

A. Yes, sir.

Q. A foot-walk outside of that?

A. Yes, sir.

The MASTER: A public bridge?

636 A. Yes, the one that goes to Highland Park.

Q. Now, Mr. Moul, you take Exhibit 16, turn to sketch 112. Will you first refer to the bottom of that sketch on that page to the words "Pipin- Over Sixth Avenue Bridge." I will ask you if that is a sketch of this Sixth Avenue bridge to which you have referred?

A. The bridge is all right.

Q. You recognize that as a sketch of the bridge?

A. It is considerable like the Sixth Avenue bridge, yes.

Q. Now, is there anything on that sketch that shows where the main is laid?

A. I don't see it.

Q. I call your attention, Mr. Moul, to the cross section shown at the right of the main sketch, that little sketch down there in the corner. State whether that shows the location of the pipe, as you understand it, as it crosses that bridge?

A. What is that sketch supposed to represent; the abutment looking from the south?

The MASTER: Is this concrete?

A. Yes, sir; it is surrounded by concrete.

Q. That appears to be looking south along the bridge?

A. That is looking towards the end of the pipe, yes. The right hand side is supposed to represent the foot-walks.

Q. The broken line represents the foot-walk, doesn't it, and the inside surface of the bridge or drive-way?

A. Well, I wouldn't say. If I look at that sketch right; you are looking at that pipe from the south looking north.

Q. From the north looking south—well it would be substantially the same, wouldn't it now, so far as the general location of the pipe is concerned; does that show it correctly, the longitudinal sketch there.

637 A. I don't understand this sketch exactly. Is that broken line supposed to be the driveway; that broken line supposed to be the drive-way, or top of the bridge or arches?

Q. Assuming that broken line to be the first walk; then where it drops down, the oval shape being the passage way for teams, cars and vehicles, and then where it raises again is the walk on the opposite side?

A. Yes, sir.

Q. Assuming that line to represent the top surface of the bridge where the traffic is, including the sidewalks and the driveway between the sidewalk, and assuming the round mark up there to represent the end of the pipe from the north looking south; does that show correctly the pipe?

A. Practically so if you are looking from the north to the south. If that is the view and you are on the north side of the bridge itself.

The MASTER: Is the foot and guard rail on the outside?

A. Yes, sir. The walk is protected with a curb. It is above the

pavement. Then the outside of that walk is guarded by a hand-rail. That applies to both sides of the bridge. As I said before, if this is looking from the north to the south, it is practically correct; and if it is from the south to the north, it should have been on the other side of the bridge.

Q. The pipe then is on which side of the bridge?

A. East side.

Q. The bridge practically crosses the river north and south?

A. Yes, sir.

Q. And the pipe is under the east walk or the walk on the east side of the bridge?

638 A. Yes, sir.

Q. Is the walk a concrete walk?

A. Yes, sir; concrete, cement walk.

Q. Now take the sketch above that, the 8 inch main under the river, do you recognize in that object the main; what is there to represent that main in the sketch?

A. Yes.

Q. Do you recognize what is made to represent the surface of the ground, of the river bed?

A. Yes.

Q. Those upright objects by the mains, those up and down pieces, what do they represent?

A. I suppose that is to represent the piling.

Q. You may state if you know whether that sketch shows the 8 inch main as it is laid under the river bed?

A. Yes, sir; it does.

Q. Now, notice the sketch above that, the 24 inch main, do you recognize in that sketch the main?

A. Yes, sir.

Q. And the lines of the river bed?

A. Yes, sir.

Q. I wish you would tell the Master whether that sketch represents accurately the way in which the main is laid under the river?

A. It represents it, I presume, as correctly as it can be got on the sketch.

Q. Now take the sketch above that—piping under the river Grand Avenue bridge—do you there again recognize in that sketch the pipe?

A. Yes, sir.

Q. How is that shown there?

A. The piling is represented here by marks below the pipe.

639 It shows the distance between them, the river bed, the length of the piling and the number of piling and how the pipe is connected to the piling.

Q. I wish you would point out just the lines there, what represents the pipe on that sketch, what the pipe is.

The MASTER: That is the straight line here?

A. Yes, sir; that is the pipe.

Q. Does the sketch show correctly the piping under the river at Grand Avenue bridge?

A. Yes, sir.

Q. What is the size of that main?

A. 16 inch at Grand Avenue.

Q. Now the top sketch, being the piping under the river, the Wabash Railroad bridge; does that show the piping as it passes under the river at the Wabash Railroad bridge?

A. Yes, sir.

Q. The same character of line indicates the piping as is shown in the other sketches?

A. Yes, sir.

Q. Now does that sketch also show the surface line of the ground of the river bed, reaching to the banks on either side, as you know it?

A. Yes, sir .

Q. What is the size of the main under the Wabash river bridge?

A. Sixteen inch.

Q. What kind of iron is that?

A. Cast iron.

Q. Is that true of all of the mains under the bridges?

A. No, sir; the other 8 inch is steel pipe.

Q. But the balance of them are cast iron?

640 A. Yes, sir.

Q. Now, while we are on the subject of piping under the bridge, is there any difference between the way cast iron mains are jointed or joined together, and the way in which steel mains are joined together?

A. Yes, sir.

Q. Please explain the difference?

A. What particular main do you want me to explain the difference on?

Q. Well, this main we are speaking of.

A. The 8 inch wrought iron is threaded with a double connection, and it has got what is termed a Dresser patent rubber clamp connected to the sleeve so it makes it practically a double threaded joint.

Q. And how does that differ from the way the iron pipes are?

A. The cast iron pipe is cast*ed* with a bell end, that is the larger portion of the pipe, large enough to receive the small end of the pipe, with a vacancy of possibly a half an inch; that vacancy is filled up with different material to form an airtight joint. In that particular job is placed a load filling with the Dresser clamp after the lead filling is in.

Q. What do you say was the length of the cup?

A. Four inches.

Q. What kind of ground did you have in excavating under the river; what kind of clay or gravel?

A. We have principally quicksand to contend with. There is a portion of it pretty thickly bedded with bowlders and when you remove the bowlders you strike the quicksand two-thirds of the way across the river from the west side.

Q. What is the difficulty with the quicksand?

A. The difficulty with the quicksand is it takes consider-
641 able more attention, housing it up and keeping it away. You have to sink your coffer dam a good deal deeper; you have got to go about four feet deeper with the coffer dam than in any other material.

Q. What is the peculiarity of the quicksand?

A. It is considerably like water; hard to house up and hard to handle; the more you handle it the more you get.

Q. You have spoken of bowlders, I wish you would give the Master a little clearer idea as to just the extent to which you were interfered with in doing the work, by these bowlders?

A. It seems to me at some early day, or rather some fellow had an enormous lot of stones and dumped them all in the bed of the river here; they are laid there loosely; some the size of a fist and some seven or eight feet through. Going across with that trench, fortunately or unfortunately we hit just about where those stones were in there. That does not apply, except the two lines, the 8 and 24 inch. There wasn't as much stone in the 16 inch line as in the 8 and 24.

The MASTER: That I suppose is the ordinary river bowlder?

A. Yes, sir.

The MASTER: It seems to you that the stones were thrown in there?

A. It seemed that way to me when I was getting them out of there.

Q. While we are on the subject of pipes, I wish you would turn to the next sketch in that exhibit, which is sketch 113; have you a pipe over the Raccoon river?

A. Two of them.

Q. And where are the pipes over the Raccoon river?

A. One on the south Fifth Street bridge and one the southwest Ninth Street.

Q. How are those mains that cross the Raccoon river constructed with reference to whether they are on the bridges or whether
642 they pass under the river?

A. On the bridges.

Q. Both on the bridges?

A. Yes, sir.

Q. Do you recognize sketch 113 as being a sketch of one of the mains crossing the Raccoon river, a sketch of the bridge over which it passes?

A. From what side am I looking at this.

Q. You are looking up streams, that is up towards the west up the river.

A. Well, this represents a line of pipe going across the river.

Q. And referring to the little sketch at the right of the large sketch, and also to the detail sketch below that, do you recognize the location of the pipe from those sketches, and do they correctly show the location of the pipe?

A. If I am looking at this up stream, why it appears to be one

of them, but the other one seems to be on the opposite of the bridge, the way I look at it.

The MASTER: Are there two which cross the same bridge?

A. No, sir.

The MASTER:

Q. One is on the down stream side and the other on the up stream side?

A. Yes, sir.

Q. Now this little sketch is a cross section of the bridge, just as though it was out off, and looking at the end of a pipe, does that show the location of the main as it is on the bridge?

A. Which one of the bridges.

Q. Don't you recognize which of the bridges this is?

643 A. I would say that is the southwest Ninth Street bridge.

Q. Southwest Ninth street bridge, looking up stream?

A. You are looking at the north end of that now, looking south.

Q. That shows correctly the location of the pipe?

A. Yes, sir.

Q. Now, the sketch below that, as I understand it, is a representation of the bridge as though you were looking down on it, down to where the main is laid, and that shows, those dotted lines show the location of the main correctly?

A. If that is the same bridge and looking down on the bridge, it is on the wrong side of the bridge, that is all.

Q. Let us see, the main is on which side of the bridge?

A. On the down stream, east side.

Q. What is the size of that main?

A. 8 inch.

Q. Of what material?

A. Which bridge are you talking about?

Q. Southwest Ninth?

A. Wrought iron steel pipe.

Q. Now, there is still another bridge over the Raccoon?

A. Yes, sir.

Q. What bridge is that?

A. They call it south Fifth Street bridge.

Q. What is the size of the main over that bridge?

A. Eight inch.

Q. And what is that?

A. Cast iron.

Q. Now, if you will again go back to page 209 of the first volume of the inventory—I haven't asked you yet whether you know the length of the 24 inch main across the river?

644 A. Yes, sir; I did give that.

The MASTER: He gave that; the 8 inch main 673 feet, and the 16 inch main 1300 feet, and the 24 inch main 640 feet. They have it in the diagram as 639.

Q. There are in the system some 20 inch main, as I understand it, Mr. Moul?

A. Yes, sir.

Q. Can you tell the court where the 20 inch main is located?

A. Yes, sir.

Q. You may do so?

A. It is on Court Avenue, starting on west Second street, runs west to Fifth street; north on Fifth street to Mulberry; on Mulberry west to Thirteenth street; north on Thirteenth street to the alley north of Walnut; west in the alley from Thirteenth to Fifteenth; north on Fifteenth street from the alley north of Walnut to intersect with the main on Grand Avenue.

Q. Do you know how many feet of 20 inch main the Company has?

A. Yes, sir.

Q. How many feet of 20 inch main are there laid in the ground?

A. 6,000 feet.

Q. Now, in giving this 6,000 feet, what do you take into consideration?

A. I took into consideration the pipe individually, that is, the number of feet of pipe.

Q. In making over-all measures, that would increase that figure some?

A. It would increase all the specials.

Q. And if you take an over-all measure, including specials, what would be the length?

A. Well, let me see; that would increase it, one, two, three, four five, six, seven—that would increase it about seven or eight feet, over-all measurement.

Q. You mean if each special or the specials taken together,
645 that would increase the over-all measurement?

A. It would read something like possibly 6015, or 6018 feet, over-all measurement.

Q. You wouldn't undertake to say just exactly what it would be?

A. No, sir; unless I had time enough to count the specials. This measurement I gave is the total length of pipe without specials, crosses, 2's or drips.

Q. Are there any 16 inch pipes in the system?

A. Yes, sir.

Q. Do you know where they are located?

A. Yes, sir.

Q. Can you from memory state to the court where the 16 inch pipe are located?

A. Yes, sir.

Q. You may proceed to do so.

A. On East First street, starting at the outlet of the governor going north to Grand Avenue, west on Grand Avenue to the alley west of Second street; north from the alley west of Second street from Grand Avenue to School; east on School street to Second, north on Second street on School to University; east on University to Bluff; north on Bluff to College Avenue. There is a 16 inch line on East Court Avenue from East First Street east to East Eighteenth Street. There is a 16 inch line on Grand Avenue from Fourteenth street to

Nineteenth street; on Nineteenth street from Grand Avenue north to Woodland; on Woodland Avenue west to Twenty-fifth street; north on Twenty-fifth street to Pleasant; west on Pleasant street to Twenty eighth; on Twenty-eighth from Pleasant to Center. On Second street from the Wabash railroad to Grand Avenue, along the side of the Wabash connecting with the river pipe to Second
646 street. I believe that is all of the 16 inch.

Q. In giving that answer, Mr. Moul, do you rely entirely on your memory without the aid of any memorandum?

A. No, sir.

Q. Have you before you in giving that answer any memoranda, or do you rely on your memory entirely.

A. Memory practically; I had a little note that I referred to occasionally to keep my memory up in shape.

Q. I did not see you refer to any memoranda.

A. I didn't at this particular time.

Q. I mean whether you gave this answer without referring to any memoranda?

A. I made this answer wholly and solely from memory at the present time.

Q. Do you recall whether on Center street near Thirty-fourth there is a short piece of 16 inch pipe?

A. Yes, on Thirtieth street, on Center west of Thirtieth street and the intersection after Thirty-fifth street of 16.

Q. Do you know how many feet of 16 inch pipe the Company has in its system in Des Moines?

The MASTER: Including the river pipe?

Judge CARR: Yes, excluding it.

A. No, I have the total including the river, 27,190 feet.

Q. That includes or takes out the river?

A. That includes it.

Q. That is inclusive of the mains in the river?

A. No, the river pipe wants to be added to that; this 27,190, plus 1,300.

647 Q. So that in giving the 27,190, that does not include the 1,300 feet of river main?

A. No, sir; it includes all underground, not under water.

Q. Now, is that figure arrived at in the same way you explain that you arrived at the measure or length of the 20 foot mains and not by over-all measurement?

A. That is derived from the main feet used in each extension at the time used. The over-all measurement is always turned into the office in connection with the number of feet of pipe used.

Q. So when you get an over-all measure, that would slightly increase the measurement.

A. In all cases.

Q. What do you say, basing your answer upon your personal knowledge, as to whether when you come to take an over-all measurement, the inventory measurement, 27,706 feet would be correct?

A. Very near it, as near as it can be got at.

The MASTER: What is the length of the pipe?

A. 12 feet; 12 feet 4 from end to end. It takes up 4 inches in the bell and therefore it lays 12 feet.

Q. Now, in giving these measurements, do you base your conclusion upon the actual measurements of the pipe, or upon the pipe as it lays in the ditch when it is jointed up?

A. The measurement of the pipe, outside of the pieces, all specials the amount of pipe on the job, so many feet laid, keep a number of the accurate length laid, adding to that any pieces. Then the over-all measurement takes in the specials and gives it the length of that trench.

The MASTER: As I understand that, the over-all measure gives the length of the main, includes all specials, such as drip pots, T's or crosses and that is the length of the main as it is laid, you measure it, and you get the over-all measure?

648 Yes, sir.

Q. I don't know whether the record shows quite clearly. Let me ask one or two further questions. Where the pipes are jointed a portion of one pipe enters a portion of another pipe?

A. Yes, sir.

Q. Of the pipe to which it is joined?

A. Yes, sir.

Q. Now, how much of the one pipe enters the other pipe?

A. Four inches; that is, that applies to cast iron pipe.

Q. On the one end of each pipe is a bell?

A. Yes, sir.

Q. What is that?

A. That is enlarged, so as to receive the spigot of the other pipe entering it.

Q. And that spigot, the part that is received by that bell is the four inches you speak of?

A. No, the loss is the bell end of it, but as the spigot comes to the back of the bell, that forms a continuous pipe on the inside and we term that the bell four inches is the part that is lost. If you measure from the end of one to the end of the second one, you have 24 feet and 4 inches, because they are both 12 foot 4. You are taking up four inches of one, but you haven't of the other.

Q. Now, in making your measurements you measure the pipe allowing for that four inches?

A. Always do that.

Q. In other words, the measurement is four inches shorter than the pipe actually is?

A. Yes, sir; we never figure pipe longer than 12 feet when it is naturally 12 feet 4.

649 Q. Have you in your system any 14 inch pipe?

A. Yes, sir.

Q. Can you tell the court where the 14 inch pipe is located?

A. Yes, sir.

Q. You may do so.

A. It is on East First street, starting from the inlet of the governor west, and as it strikes a radius of a foot west of the east line, runs

direct north to intersect Court Avenue and what used to be the Wabash line.

Q. Before going further, let me ask you whether the 27,206 of 16 inch main in the inventory is a correct measurement of the 16 inch mains by the over-all process?

A. No, it wouldn't be over-all process, because I didn't have it.

Q. You have given the measurement as 27,190. Now I am asking you about the figure in the inventory which you have before you there, of 27206, which is 16 feet difference.

A. That would take in all the over-all measurements.

Q. I am asking you whether 37,206 in your judgment is a correct over-all measurement of the 16 inch pipe?

A. I would say it was.

Q. Now, take up the subject of the 14 inch pipe again, and state all the streets on which 14 inch pipe is laid.

A. I have to my knowledge.

Q. And you are giving your answers now from your recollection, unaided by any memoranda before you?

A. Yes, sir.

Q. Do you know how many feet of the 14 inch pipe there are?

A. I only know that from the measurement of the street. It is a piece of pipe I didn't lay myself. It measures up over-all measures, as near as I could get at it, from beginning to end, 650 650 feet.

Q. Now, the figure in the inventory is 622 of 14 inch pipe. Can you say from your personal knowledge that there is at least 622 feet of 14 inch pipe?

A. Yes, sir.

Q. Your understanding is there is some more than that?

A. Yes, sir.

Q. Have you any 12 inch mains in your system?

A. Yes, sir.

Q. Can you tell the court where those 12 inch mains are laid?

A. We have a line of 12 inch main on east Fifteenth street, starting on Court Avenue, and north to Polk Avenue, west on Polk Avenue to East Fourteenth street, north on East Fourteenth street to Washington. We have a 12 inch line on East Eighteenth street, starting at east Court Avenue, going north to intersect with the main on Easton Boulevard. On the west side of the river we have a 12 inch line on Grand Avenue, starting on the west side of the river, running west to half way between Twelfth and Thirteenth street. We have a 12 inch line on Ingersoll Avenue starting at Nineteenth street and running west to Thirty-ninth. Then there is a break in there, we have two little pieces running from Forty-first east to the alley. We have a 12 inch line on College Avenue, intersection with the Bluff street main; it runs west to Tenth; starts again at Thirteenth and goes part of a block; starts again at Sixteenth and goes east part of a block, and it goes east on Seventeenth to Nineteenth. We have a 12 inch main along the Wabash Railroad starting on Second street and goes west to Fifth; north on Fifth to Mulberry;

west on Mulberry to Eighth. I don't draw to mind any more
651 just now.

Q. Do you know Mr. Moul, whether there is some 12 inch main on Nineteenth street?

A. Yes, sir; from Woodland Avenue to Cottage Grove.

Q. I think you didn't mention that?

A. No, I did not.

Q. Now, in giving this answer, I want to inquire whether you are relying solely on your memory, without the aid of memoranda before you?

A. Altogether.

Q. Now, do you know the total length of the 12 inch pipe?

A. Yes, sir.

Q. If you know that from your personal knowledge you may state to the court what is the total length of the 12 inch pipe?

A. 31300 feet.

Q. I notice in the inventory the figure is given 31349, and I will ask you whether in your opinion the 31349 in the inventory is a correct measure, taking over-all measurement, including specials?

A. I would say it was.

Q. Have you any 10 inch main?

A. Yes, sir.

Q. Can you tell the court where that is located?

A. I can tell quite a portion, but I don't know whether I can get it all or not.

Q. You are speaking now from memory, as I understand it?

A. Yes.

Q. You may tell the court all of the 10 inch main you now recall.

A. We have got a ten inch on East Grand Avenue, starting on the side of Grand Avenue and going to the north side of Grand
652 and east on Grand to Fifth and north on Fifth to Maple. Then we have a ten inch line on Crocker street, starting at Second street and running north to intersect with Nineteenth street. Then we have a 10 inch line on University Avenue beginning at Second street and going to between the cross connections at Twenty-eighth. Then we begin at Thirty-fifth and go to Thirty-seventh. Then we break again and begin at Fortieth and go out to that Park out there. I suppose it is Forty-eighth or Forty-sixth street. We have got a ten inch main on Twenty-eighth street from Center to Kingdom Avenue. There is a ten inch line along the Wabash from the river to Second street. There is a piece of ten inch out on East Thirteenth street from a point north of Hubbell to a point north of Polk Avenue. There is a ten inch on Sixth Avenue from College Avenue north to Corning Avenue. That is all I have in mind at present.

Q. Let me call your attention, Mr. Moul, to the pipe on Grand Avenue between Fourteenth and Fifteenth?

A. That is a ten inch pipe; it starts a little the other side of Twelfth street and goes to Fifteenth.

656 A. Yes, sir.

Q. Your attention was called yesterday to the map in two sections of the east and west side of the river, marked Exhibits 17 and 18 and you stated that you had examined those maps and that they were correct?

A. Yes, sir.

Q. Now do those maps show correctly the location of the six inch mains and the length of the mains, that is where they extend along the street, and the streets upon which they are laid, the length of each particular street; in other words do these maps show correctly and accurately the six inch main in the system in Des Moines?

A. Yes, sir; as near as it can be got at.

Q. I asked you if you know that from your personal knowledge?

A. Yes, sir.

Q. Do you know from your own personal knowledge how many feet in all there are of the six inch mains?

A. Yes, sir.

Q. You may state to the Master how many feet in all there are of the six inch mains?

A. You have got 161,986 feet.

Q. Now will you refer to the inventory, page 209 of Exhibit 15, I will call your attention to the statement in the inventory of six inch mains 162,004 feet, and ask you whether that is in your judgment a correct statement of the length of the six inch mains measuring specials as you have heretofore described?

A. Yes, sir.

Q. You say that is a correct statement?

A. I would say that is correct.

Q. Have you four inch mains in the system?

657 A. Yes, sir.

Q. Do Exhibits 17 and 18 correctly show the location of the 4 inch mains in the system?

A. Well the location; what do you mean, location in the street?

Q. Does it correctly show the streets upon which the four inch mains are laid, and the length of the four inch mains on the streets, the four inch mains as it is laid in the street?

A. Yes, sir.

Q. Do you know how many feet there are of the four inch mains in the system?

A. Yes, sir, I do.

Q. Of your own personal knowledge?

A. Yes, sir.

Q. How many are there?

A. 574,000 feet.

Q. Now referring again to the inventory on page 209, you will note that the inventory shows there are 573,724; I will ask you to state whether from your personal knowledge you know that there is that many feet of four inch mains.

A. Yes, sir.

Q. Now, you have some three inch mains, have you?

A. Yes, sir.

Q. Do the maps Exhibits 17 and 18, correctly show the three inch

mains, showing the streets upon which they are laid and where they are laid upon the streets?

A. Yes, sir.

Q. Do you know the total lengths of three inch mains which there are in the system?

A. Yes, sir.

Q. And do you know that of your personal knowledge?

658 A. Yes, sir.

Q. You may state.

A. 34,989 feet.

Q. Now I call your attention to the three inch mains as shown in the exhibit 15 at page 209, showing 35,301 feet and will ask you whether in your opinion that is a correct statement of the length of the three inch main when measured by the over-all system of measurement, including specials.

A. Yes, sir.

Q. You have some two and a half inch mains, have you in the system?

A. There is no two and a half; there is two inch and less; there is no two and a half inch to my knowledge.

Q. You have some mains then under two and a half inches?

A. Yes, sir.

Q. Now does the maps, Exhibit 17 and 18, show correctly the streets on which mains of that size are laid and the places on the streets where laid?

A. Yes, sir.

Q. You know that of your personal knowledge too?

A. Yes, sir.

Q. Do you know of your personal knowledge how many feet there are of the mains that are under two and a half inches?

A. No, sir.

Q. Have you made any calculation based on your knowledge within your own possession, for the purpose of arriving at the number of feet there is under two and a half inches?

A. I have made a calculation to arrive at a conclusion; yes, I did.

Q. Now what information have you as to the number of feet of these small mains, and in that connection if you have any explanations to make, you may make them.

659 A. The reason I didn't give the total feet of the two inch, the Company years ago ran what was termed then a long service, and it went on record as a new service, but in later days they determined all the pipe laid parallel in the main should be termed main. I have gone over all of this and my best memory is—I have never made an exact measure, from the fact that I deemed them small pipe, and these changes disables me to give the total amount except I would scale the map or go over these places myself to arrive at any particular amount of feet.

Q. Can you approximate from the knowledge you have, from scaling the map, which you state you know to be correct, can you state whether the number of feet given in the inventory 33,947,

taking over-all measurements, is a substantially correct measurement?

A. Scaling the map it proves that.

Q. By scaling the map you find that a substantially correct statement?

A. As shown on the map.

Q. You have already stated the map shows correctly the streets upon which these small mains are laid?

A. Yes, sir.

Q. And where they are laid?

A. Yes, sir.

Q. You know that fact from your personal knowledge?

A. Yes, sir.

Q. And in scaling the map you have scaled the map with respect to these mains at the places where you know of your own personal knowledge the mains are?

A. I know that, yes sir.

Q. So that you have scaled the map only to arrive at the
660 result in figures?

A. Yes, sir; and as to the small mains only, I didn't scale the map at all in any of these conclusions.

Q. Tur-ing to page 211 of the inventory Exhibit 15, what do you know about the paving in the city of Des Moines that is laid over mains?

A. I know all there is to be known.

Q. You know from your personal knowledge, in each instance where there is pavement over the mains, do you?

A. Yes, sir.

Q. And do you know in each instance the kind of paving that is laid over the mains?

A. Yes, sir.

Q. Now, these tables in the inventory, did you have to do with making these tables up?

A. Yes sir.

Q. And who furnished the information from which those lists or figures were made up?

A. I did.

Q. And did you correctly from your personal knowledge, furnish the information from which those figures were taken?

A. Practically all of them, I don't know but what all of them.

Q. And you were present when this work was being done?

A. I was.

Q. What do you say as to whether the inventory in that respect in respect to those figures is correct?

A. I would say they were correct.

Q. In what you have stated you have referred to the inventory beginning on page 211; state whether what you say is true as appears also on page 212 and page 213?

661 A. I would say this is correct as far as the pavement is concerned. Now the totaling of these figures I did not do.

Q. You did not make the calculations?

A. No, sir, but I gave the dimensions and the kind of pavements,

and I would say those footings are correct. They have been gone over by two or three different people, in my presence; that is the conclusion that wound it up.

Q. Now, going to page 215 of the inventory, you will find a list or inventory of line drip pots; do you know of your personal knowledge how many 20 inch line pot drips there are?

A. Yes, sir.

Q. How many?

A. One.

Q. Do you know how many 16 inch, of your personal knowledge, there are?

A. I don't believe I can state that correctly without studying it out.

Q. Just look over the figures as shown in the inventory, and the total, and having in mind that the three inch drips are the side drips you spoke of as side drips, and considering them as included in this number, I will ask you to state to the court whether that is a correct inventory of the drips or drip pots of the Company in actual use?

A. Well, it is correct as far as it goes; doesn't go far enough.

Q. You may explain?

A. It doesn't represent all there is.

Q. How many more is there than appears in that list?

A. I can call to mind one readily; this 24 inch, that doesn't show in this inventory.

Q. What others, if any?

662 A. Well, that is practically correct; that is, one four inch isn't here. It represents 107 and there is 108. The side pots is correct with one exception only; the 17 representing three inch should be 15 in place of 17. On the six inch it should be 32 in place of 30; and then one 24 inch.

The MASTER: The balance is correct?

A. Yes.

Q. Except it omits one 24 inch?

A. Yes.

Q. Where is that?

A. On Court Avenue between the alley west of First and First street.

Q. You said yesterday on cross examination that that pot weighed substantially two tons?

A. One ton.

The MASTER: You say there should be, instead of seven 8 inch there should be 32?

A. No, that is six inch. In place of 30, they should be 32.

The MASTER: How is the 8 inch?

A. That is correct. The three inch in place of 17, should only be 15.

Q. In other words, it is correct on the 6 and 3?

A. The number of drip pots is correct there except omitting the one which is in my count.

Q. Will you turn to page 216 of the inventory, you will notice the inventory states 191 crossings under steam railroads; I want

to ask you to state from your personal knowledge whether that is a correct inventory in that respect?

A. I gave practically that information.

Q. That is, you gave the information from which they were made?

A. Yes, sir.

663 Q. Did you give the information according to the fact?

A. Yes, sir.

Q. So that there are 191 steam railroad crossings?

A. I didn't count the 191. I only told them where and how many there were in the different places. They added them together. I couldn't say whether that footing was 191. I didn't foot them up. I told them how many times and each and every track we cross.

Q. You worked with some one who was getting this result?

A. Yes, sir.

Q. Who was it?

A. The gentleman over there (indicating) I can't call his name.

Q. He took the information and kept the figures and then he totalled them?

A. Yes, sir.

Q. And you didn't add them up?

A. No.

Q. Is that, in your judgment, without stopping to count up or add the figures, is that a correct number?

A. I would say it was.

Q. You could, if we took the time, give those crossings now from memory, could you?

A. Yes, sir; I might miss a track or two, but then it would be pretty close.

Q. Now, do you know, Mr. Moul, how many crossings there are under the street car tracks, under single tracks and how many under double tracks?

A. I do.

Q. Referring to the inventory again on page 216, I note there is given 227 of the single track crossings, and 109 double track

664 crossings, making a total of 336; who furnished the information from which those figures are made up?

A. That was furnished practically the same time and from the same source.

Q. Is the information furnished accurate and correct?

A. Yes, sir.

Q. And according to the fact?

A. Yes, sir.

Q. Those figures then *was* made up from the information furnished by you?

A. Yes, sir.

Q. Did you do the adding up, making the calculations?

A. No, sir.

Q. What do you say as to whether the conclusions, the sums total is true and according to the fact as shown here in the inventory?

A. I would say it is correct.

Q. I wish you would take Exhibit 16 and turn to sketch 115;

now do you recognize that as a sketch showing the mains under crossings?

A. I suppose that represents the railroads and the mains crossing under them.

Q. And in sketch 116, does that give the Master an understanding of how these mains cross the street car tracks, where they are shown to cross the street car tracks, and where they are shown to cross the railroad tracks?

A. Yes; a very plain sketch of it; represents it all right.

Q. There is another sketch, is there not, 117, that shows where there is more than one track; is that a correct representation of the crossing there?

665 A. Yes, I would say that is correct.

Q. Showing the number of tracks correctly?

A. Yes, sir.

Q. Now, could you from memory now, if you took the time to do it, tell the Master where those crossings are, these street car crossings?

A. Yes, but that would take quite a little time.

Q. But you could do it, could you?

A. Yes, sir; invariably so.

At this time, 12: M. an adjournment was taken until 1:30 o'clock P. M.

666 1:30 P. M., THURSDAY, *July* 20, 1911.

HENRY MOUL, being continued on direct examination by Hon. George H. Carr, testified as follows:

Q. Now Mr. Moul, if you will refer again to Exhibit No. 15, turning to page 221, you will observe those are lists and figures showing paving over service, 221, 222, 223, 224 and ending on 225. I will ask you who furnished the data or information from which those lists were made up?

A. I furnished the principal part of it.

Q. Did you make the calculations, that is make the figures?

A. No, sir.

Q. Were the figures made up by others from the information which you furnished?

A. Yes, sir.

Q. What do you say as to whether these lists or figures, the inventory in that respect is a correct inventory beginning on page 221 and closing on page 225?

A. I would say it was.

Q. Now refer to page 226 of the Exhibit 15, cutting paving over service, by whom was the information contained in that list furnished?

A. From the same source.

Q. And made up in the same way?

A. Yes, sir.

Q. That you have described. And what do you say as to that being correct?

A. I would say it was correct.

Q. Examine Exhibit 19 and tell the Master if you know what that is.

667 A. The entire sheet?

Q. Yes.

A. The line at the top of the map represents on the street Grand Avenue, represents the six inch high pressure system which supplies Valley Junction just west of the west city limits of Des Moines. West of that is supplied the town of Valley Junction practically off of the same main with the exceptions of going through a governor in Valley Junction causes the pressure in Valley Junction to be under a low pressure system.

Q. Is there indicated upon the map the west city limits of the city of Des Moines?

A. City limits or 63d street.

Q. Where with reference to the street is the city limits, the center of the street or whereabouts?

A. Supposed to be the center of the street.

Q. Referring to Exhibit No. 18 and directing your attention to the high pressure main running to Valley Junction as shown on this map state where the main ends, that is how far this map shows the main?

A. This map shows just west of Polk Boulevard.

Q. About a block west?

A. About a block.

Q. Now refer again to the map before you being Exhibit 19, and state whether the map Exhibit 19 takes up the main at the point or substantially at the point where Exhibit 18 leaves it?

A. This is not marked. I don't know whether that is representing 43d street or 44th.

Q. It shows a continuation of the line on Grand Avenue, does it?

A. Yes, sir.

668 Q. This exhibit 19 shows a continuation of this high pressure main along Grand Avenue to what point, to what numbered street?

A. Where it ends?

Q. No along Grand Avenue to what point.

A. It leaves Grand Avenue at 56th street.

Q. There is marked on the plat Ashawa road. Is Ashawa road a continuation of Grand Avenue?

A. From 56th street.

Q. Then Grand Avenue goes to 56th street?

A. If I understand it right.

Q. Now you will notice on the plat 51st street making off of Grand Avenue to the south?

A. Yes, sir.

Q. Is there a main laid along 51st street as indicated on the map?

A. Yes, sir.

Q. And what sized main is that?

A. Two inch.

Q. Is that two inch main on 51st street connected to and supplied by the six inch main on Grand Avenue?

A. Yes, sir.

Q. I don't know but you spoke of that yesterday, but are there consumers supplied directly off of or from that two inch main?

A. Yes, sir.

Q. On 51st street. And are there consumers west of Greenwood Park that are supplied directly off of the six inch or high pressure main?

A. Yes, sir.

Q. Now when we come to 56th street how does the six inch main run?

669 A. Goes south.

Q. On 56th street?

A. Yes, sir.

Q. To what point?

A. What they call Valley Junction road.

Q. Then along Valley Junction road the main extends to what point?

A. 63d street.

Q. From 63d street going towards Valley Junction?

A. It goes south on 63d, runs from 56th to 63d.

Q. Where is 63d street with respect to the city limits?

A. It is right east of the west city limit line.

Q. Sixty third street, the center of 63d street is the city limits?

A. Yes, sir.

Q. And is that also what is called First street in Valley Junction?

A. Yes, sir.

Q. So that it really has a double name?

A. Yes, sir.

Q. Sixty Third street of Des Moines and First street of Valley Junction?

A. Yes, sir.

Q. Is there a main on 63d street?

A. Yes, sir.

Q. On which side of the street, the Des Moines side or Valley Junction side?

A. Des Moines side.

Q. And from where to where does the main run?

670 A. The six inch runs from Valley Junction road to Elm I believe it is and then there is a four inch running from Elm south to the railroad, Railroad Avenue, possibly two blocks south.

Q. From what source is the gas that is used in that main obtained?

A. Which one of the main-.

Q. The four inch main.

A. It first goes through the six inch into a governor station on the corner of First and Elm street, then the pressure is reduced to a low pressure system, takes it out of there then to the meter house and runs east on Elm until it strikes First or 63d, and then it goes south

to Railroad Avenue. Then there is another branch goes on Hartford east from 63d and south—well it is a little street, I don't know what the name of it is, possibly 62d. That is supplied through the governor under low pressure.

Q. When was the 63d street main run with reference to the first of last January?

A. You mean the four or six inch?

Q. The four, first tell us about the four.

A. That was put in at the same time the Valley Junction system was put in.

Q. That was how long ago?

A. Well I think that must be somewheres about eight years ago I guess.

Q. Does the main that you spoke of on Hartford Avenue in Des Moines, does that show on this map?

A. No, sir.

Q. Do you remember whether it was laid at the first of January or since? That main was laid since the 1st of January wasn't it?

671 A. Yes, sir.

Q. Are there consumers supplied by this four inch main on this 63d street, that is I mean customers in Des Moines?

A. Yes, sir.

Q. Are there any supplied on this main on Hartford Avenue now?

A. Yes, sir.

Q. Now are there any customers supplied from the six inch main along Valley Junction road?

A. Yes, sir.

Q. In Des Moines I mean, in the territory of Des Moines.

A. Yes, sir.

Q. Do you know the level of the surface of the ground upon which Valley Junction is built as compared with the level or elevation in the territory east of that in Des Moines?

A. It is considerably lower.

Q. Do you know just how much lower?

A. Well you take the high point on Grand Avenue this side of 56th street, I think that is about the highest point, possibly 51st is, into Valley Junction I should say there would be one hundred to one hundred and seventy five feet difference.

Q. Take the territory that is within the city limits east of 63d street, how much of that territory is there that is on practically the same level as the city of Valley Junction?

A. Oh there is quite a bit. Go east without much raise until you get across the Milwaukee railroad, I will say possibly three quarters of a mile east of 63d street before it starts to raise.

Q. The Milwaukee railroad is shown on this plat?

A. Yes, sir.

Q. After you get across that then it begins to rise.

—. —.

672 Q. So that all that portion of the city of Des Moines that lies west of where the Milwaukee railroad is shown is that practically the same level as the town of Valley Junction?

A. Yes, sir.

Q. Now going east from where the Milwaukee railroad crosses the Valley Junction road how far do you go before you come to the high point you have spoken of somewhere about Greednwood Park?

A. You go east, you have got to go north first—well I would say three quarters of a mile and then you would go east on Grand Avenue possibly a quarter of a mile before you would strike the highest point in my opinion.

Q. Now take the territory along 56th street as shown on this plat, how much of that territory east of 56th street is about the same level as Valley Junction?

A. Isn't any east of 56th on the same level of Valley Junction.

Q. The ground begins to raise from this?

A. It begins to raise when you strike 56th street.

Q. Does it rise gradually until you get to this high point you speak of?

A. Yes, sir.

COURT: I don't believe I understand you clearly there. You say Valley Junction is 150 or 175 feet lower than Des Moines?

A. The highest point in that particular district.

COURT: The highest point in Des Moines?

A. I would not say the highest point in Des Moines, but the highest point between Des Moines and Valley Junction.

COURT: East Des Moines is rather lower than Valley Junction isn't it?

673 A. That I could not say.

COURT: The coon river runs from Valley Junction?

A. Yes, sir.

Q. Now I will ask you whether this low territory that is within the city limits of the city of Des Moines which you have described could be supplied so as to give good service to consumers through the low pressure mains? The low pressure main that now supplies Des Moines?

A. No, sir; it could not, not in my opinion.

Q. Now take the territory around Greenwood park and east of there taking into consideration the distance from the works and the lay of the ground and all that and the size of the main, I ask you whether that territory could be supplied so as to give good service through the low pressure mains?

A. East of Greenwood it is now being supplied under the low pressure, but there is not sufficient pressure at the end of that low pressure main now whereby anybody beyond that at any distance could derive any benefit if tapped in on that main without reinforcing the pressure either by high pressure system or circulating line.

Cross-examination by R. O. BRENNAN, Esq.:

Q. You have told us about the character of the mains in the distribution system and their size. Can you tell us about when they were laid?

Objected to as not proper cross examination.

A. I can tell you between what years possibly but I can't tell you or apportion the particular year.

Q. You can take the streets can't you and tell us the year
674 in which these mains were laid?

A. I cannot. I can't pick out or designate each and every one in each and every year.

Q. The figures shown in the inventory to which your attention was call-d represent the length of the mains together with the specials, that is correct isn't it?

A. Yes, sir.

Q. And this high pressure main which supplies Valley Junction, that is included in the figures in this inventory?

A. No, sir.

Q. Sure about that?

A. I didn't include any of Valley Junction at all.

Q. Well is the high pressure main from the gas works to the city limits, is that included in the figures representing the amount of mileage or mains in the distribution system within the corporate limits of the city of Des Moines?

A. I didn't consider the high pressure system at all nor Valley Junction.

Q. (Question read.)

A. I said I didn't include any of that except the eight inch across the river and that was specified additional.

Q. You would say it was not included in the figures represented in this inventory?

A. Yes, it is represented in that inventory, yes.

Q. It is included in connection with the other mains?

A. Yes, sir.

Q. And forms a part of the aggregate number of feet of mains within the city of Des Moines?

A. Yes, sir.

Q. Do you know the character of the pavement upon each
675 and every street in the city of Des Moines?

A. Very closely.

Q. And character of the foundation?

A. Yes, sir. That is where the pavement covers a gas main.

Q. Did you keep a record of the pavements, character of the pavements when laid the foundations under the surface of the pavement?

A. When the pavements are laid.

Q. Did you keep a record or did you trust to your memory in giving your testimony with reference to the character of pavements in the city?

A. Why both.

Q. What kind of a record did you keep as to the pavement?

A. Every hole is placed on record that is opened in a pavement concerning the gas company.

Q. What is done with that record?

A. That is turned into the office.

Q. When is it turned into the office and by whom?

A. As soon as the work is completed or thereabouts and by me.
Q. In giving your testimony have you relied to any extent upon records which you keep and which you turned into the office?
A. I have not recferred to any that was in the office then.
Q. You have testified entirely from your memory?
A. No, sir.
Q. With reference to pavement?
A. No, sir.
Q. What has been the source of your information?
A. I have a record of my own that prompts me in some instances in regard to pavement.
Q. What is the character of that record?
676 A. That is a personal book that I carry.
Q. That book which you carry does that show the dates upon which mains were laid in the streets?
A. No, sir.
Q. Does it show the dates upon which the streets in question were paved or improved?
A. No, sir.
Q. You were not interested or concerned with dates in earlier constructions?
A. Not in regard to placing of the pavement.
Q. I believe you said upon yesterday that perhaps seventy or 75 per cent of those mains were put in on streets either at the time the street was being -aved or before it was paved?
A. That is making a rough conclusion.
Q. That is just an estimate on your part?
A. Yes, sir.
COURT: Let me understand that. Seventy five per cent was laid before the pavement on the street was laid?
A. Yes, sir.
COURT: The other 25 after?
A. The paving had to be removed.
Q. How many river crossings have you in Des Moines?
A. Four.
Q. Are they all in the river or are some of them upon bridges?
A. I did not count the two—have pour under the river and three on bridges.
Q. Where are the four that are under the river?
A. One is right south of the Grand Avenue bridge, one is right south of the Wabash railroad and there is two right south of the Rock Island railroad.
677 And the others are upon bridges?
A. Yes, sir.
Q. One on Grand Avenue?
A. No, one on Sixth Avenue, one southeast Fifth and one on southwest Ninth.
Q. Did you formerly have a main on the Grand Avenue bridge?
A. Had a temporary main across there only.
Q. How long was it there?
A. Oh I think it was there a couple or three years.

Q. Did you construct the river crossings near the Wabash bridge, or was that constructed before you entered the employ of the company?

A. Well it was and it was not. There was on- in there before I commenced with the company but I took that out and enlarged it.

Q. What was the size of the main that was across the river at the time you went to work for the company?

A. There was a ten inch then.

Q. Was that ten inch main taken out?

A. Yes, sir.

Q. And one put in?

A. Yes, sir.

Q. What was the size of the last one put in?

A. Sixteen inch.

Q. When was that put in, what year?

A. I think that 16 inch main was put in there in 1899 I guess or '98.

Q. Do you remember how long you were engaged in the construction of that river crossing?

A. From the time I began until I ended.

678 Q. I know, but tell how long that was?

A. That job took, if I remember right somewhere about eight weeks I think I was at that job.

Q. About how many men were working under you?

A. I had sixteen to twenty four.

Q. Is that where you encountered all those boulders?

A. No, sir.

Q. Where were all those boulders you tell about?

A. 24 inch line.

Q. Where is that located?

A. South of the Rock Island railroad.

Q. Between Vine and Markets streets?

A. Yes, sir.

Q. Crossing the Des Moines river?

A. Yes, sir.

Q. Is that original construction by you or was it substituted for another line that had been across?

A. No, sir; it was new line.

Q. You found a lot of boulders resting upon quick sand?

A. Yes, sir.

Q. You think the quick sand held the boulders do you?

A. Well I don't know as they held them very much.

Q. They were there and you encountered them?

A. They were there.

Q. And it was quick sand?

A. The biggest part of it, biggest part of the excavation was quick sand.

Q. In construction this river crossing did you employ cofferdams?

A. Yes, sir.

Q. All the way across the river?

679 A. Yes, sir.

Q. And the mains were laid about three feet you say below the bed of the river?

A. Yes, according to the city engineer figures.

Q. What is it according to your figures?

A. Didn't level it at all, took his figures.

Q. When did you get his figures?

A. Before we started and during the construction.

Q. He gave you levels?

A. He did.

Q. The city engineer?

A. Well an employé of that department.

Q. How did you preserve the levels which the engineer gave you?

A. He gave me a bench mark and I leveled over with a spirit level.

Q. Where was the bench mark placed?

A. One the east side of the river and one the west just above where we worked.

Q. On the bridge?

A. No, sir; on a stake he had drove down himself.

Q. Just a wooden stake which represented the bench mark?

A. Yes, sir.

Q. From which you took your levels?

A. Yes, sir.

Q. Has not part of the main within the past few years been exposed?

A. That one?

Q. Either of them?

A. Yes, sir.

Q. To what extent?

680 A. The one up at Grand Avenue is exposed in view a part of it was taken out and relaid in 1903 I believe, 3, or, 4.

Q. The same size.

A. That is a sixteen up there.

Q. You took up part of it and replaced it?

A. I relaid it all and part of it the high water took away and I replaced that with new pipe.

Q. Of the same size?

A. Yes, sir.

Q. Sixteen inch?

A. Yes, sir.

Q. That is exposed at the present time isn't it?

A. No, I don't think it is. There might a very little of it at the west end, be very close to the top of the water at the present time.

Q. You think that main is three feet below the bed of the river at the present time?

A. Not that one.

Q. Is the one down at the Rock Island bridge?

A. Well I suppose it is.

Q. Have you examined it recently?

A. No, sir.

Q. When did you last see it?
A. Not since I laid it.
Q. That is several years ago.
A. Yes, sir.
Q. You don't know what the result of the action of the river has had upon the main if any?
A. No, sir.

Q. Or whether any changes in the conditions now as com-
681 pared with the time when you placed the main in the river?

A. I could not say as to the conditions of the bed of the river.
Q. This high pressure main runs out Ingersoll Avenue does it not?
A. Part way, yes.
Q. How far west on Ingersoll Avenue does it extend?
A. 43d.
Q. It leaves Ingersoll Avenue at 43d street and goes south to Grand?
A. Yes, sir.
Q. There are other mains on Ingersoll Avenue to 43d street are there not?
A. No, sir.
Q. Where is the other main in Ingersoll Avenue?
A. It runs to between 40th and 41st.
Q. So that the high pressure main extends in Ingersoll Avenue west a distance of from two or three blocks where the other main leaves off?
A. Yes, about two blocks and a half beyond I would judge.
Q. Now are there any customers served between 40th and 43d streets?
A. Yes, sir.
Q. How many?
A. I think it is five we have got there, four or five.
Q. Are there any dead services in there?
A. No, sir.
Q. None at all.
A. No, sir.
Q. Where does this other main go after it ends there at 43d street does it end there or go south to Grand Avenue?

A. The high pressure?
682 Q. No the low pressure main.

A. It ends practically 43d and Grand.
Q. That is the terminus of that line?
A. Yes, sir.
Q. Don't extend south of Grand?
A. I don't understand you.
Q. You have two lines of main in Ingersoll Avenue up to 41st street, one high pressure and one low pressure, that is true isn't it?
A. Yes, sir.
Q. You say the high pressure mains continues on to 43d street?
A. Yes, sir.

Q. Then leaves Ingersoll avenue and goes to Grand?
A. Yes, sir.
Q. Proceeds out Grand to Ashawa road, down Valley Junction road and into Valley Junction.
A. Yes, sir.
Q. Now I am asking you about the low pressure main which you say comes out Ingersoll Avenue as far as 41st street?
A. 40th I said.
Q. Is 40th through there?
A. Yes, sir.
Q. Runs north and south of Ingersoll?
A. Yes, sir.
Q. Does the main go either north or south, is there any branch north or south of Ingersoll from 40th street?
A. To Grand, yes.
Q. Does it go south to Grand?
A. To Grand, yes.
Q. Does it go out Grand Avenue?
683 A. Well they all end at Grand Avenue with the exception of 42d street.
Q. Forty second street was the western terminus of the gas mains?
A. No, sir.
Q. Where?
A. They end just a little bit beyond 43d street, that is the low pressure system.
Q. You have how many mains in Grand Avenue running to 43d street?
A. One.
Q. Do you have any out Woodland Avenue?
A. Yes, sir.
Q. How many?
A. On Woodland Avenue we have one.
Q. How far west does it extend?
A. 25th street.
Q. Pleasant street, got one out Pleasant?
A. Yes, sir.
Q. How far?
A. It runs on Pleasant street to 28th.
Q. No more than one main in Pleasant street?
A. No, sir; not at that point.
Q. Where is it on Pleasant street you have two mains?
A. No place on Pleasant street where we have parallel mains, except the intersection of 19th.
Q. I understand you that high pressure main serves about 15 customers in Des Moines, is that right?
A. Well I would estimate that possibly more than fifteen if you are going to take in 51st street. When I made that estimate I hadn't in mind 51st street being fed off that high pressure.
Q. Have you got a low pressure main off 51st.
684 A. No, sir; high pressure.
Q. How many customers on 51st street?

A. I think about 15 on 51st street.
Q. Between Ingersoll and Grand?
A. No, runs from Grand Avenue south?
Q. How far south?
A. About 2,000 feet.
Q. You think you have about fifteen customers. That is a branch from this high pressure main.
A. I think that is it, twelve or fifteen in that neighborhood.
Q. How many additional customers?
A. Take those outside that feed off the high pressure, Greenwood west would possibly be, I would say possibly fifteen or twenty.
Q. You mean by that that you have made that many service connections. You don't know personally whether the consumers ever are served with gas?
A. No, sir; I do not.
Q. You stated on yesterday I believe you were not familiar with the service connections after they were made b- you?
A. No, sir; I am not.
Q. You don't mean that Valley Junction is 175 feet below the level of the business section of Des Moines do you?
A. I would guess that yes, it is only a guess, I didn't level it.
Q. You think that for instance the intersection of 4th and Walnut streets and the busines section of Valley Junction would vary in elevation 175 feet?
A. From 4th and Walnut to Valley Junction.
Q. Yes?
A. I imagine that the highest point between here and
685 Valley Junction would be about 170 or 175 feet.
Q. No, do you mean Valley Junction is 175 feet lower than the business section of Des Moines?
A. I didn't say that.
Q. What do you mean by this 175 feet.
A. I said Valley Junction in my opinion was about 170 or 175 feet lower than the highest point between here and Valley Junction.
Q. Where is the highest point between here and Valley Junction?
A. I would judge somewheres 51st to 56th.
Q. On Grand Avenue?
A. Yes, sir. We are speaking of Grand Avenue.
Q. You say you have 191 railroad crossings?
A. Yes, sir.
Q. And are you including in the 191 the railroad crossings shown on the map, Exhibit 19, the Milwaukee road where it crosses Grand Avenue?
A. The high pressure system?
Q. Yes.
A. No, sir.
Q. 191 exclusive of that crossing?
A. I think so.
Q. Do you know whether that is true or not?
A. No, I do not.
Q. Have you checked over the figures to ascertain whether or not

this Milwaukee crossing on the Valley Junction road is included in that amount?

A. I checked them over, I didn't make the footing.

Q. Have any railroad crossings in sout- Des Moines?

A. One.

Q. Where is that?

686 A. Greatwestern and I guess it is Jackson street now.

Q. Any in Highland Park?

A. Railroad crossings, no.

Q. How do you treat Interurban crossings?

A. Call that trolley.

Q. Call that the same as street railway crossings do you?

A. Yes, sir.

Q. In east Des Moines how many railroad crossings have you?

A. We cross the Northwestern several times, that is different lines.

Q. All the mains run east and west north of Court Avenue you cross under the Northwestern do you?

A. Yes, sir; including the one on Court Avenue.

Q. But you don't cross under the northwestern at any point south of court avenue do you?

A. No, sir.

Q. How far north do you run east and west mains under the right of way of the Chicago Northwestern Railway?

A. Grand Avenue is the farthest north we cross under the tracks.

Q. So from Court Avenue to Grand Avenue you cross the Northwestern?

A. Yes, sir.

Q. Have mains on each and every street?

A. Yes, sir.

Q. And some duplicate mains?

A. Only one.

Q. That is the one in Court Avenue?

A. Yes, sir.

Q. Now did you treat that crossing on Court Avenue as one crossing or two?

687 A. Two.

Q. Your north and south mains where they cross the Northwestern railroad right of way in Capitol park, have you any duplicate mains in that section of the city?

A. No, sir.

Q. All single mains are they?

A. Yes, sir.

Q. And how far east does the distribution system extend?

A. East 14th, that is crossing the railroad.

Q. Do you have any mains crossing the Northwestern Railroad right of way west of Ninth Street?

A. 14th street and 13th street.

Q. 14th is east isn't it?

A. Oh that is right. West of 9th street we don't cross the Northwestern only on Penn. Avenue.

Q. You have no main in Ninth Street?

A. Yes, sir.

Q. Do you have a main that crosses the Northwestern Railway at Ninth street?
A. Yes, sir.
Q. One in Pennsylvania Avenue?
A. Yes, sir.
Q. None west of that point?
A. No, none west.
Q. Penn. Avenue is the next street west of Ninth street?
A. Yes, sir.
Q. Then where is the next main?
A. 12th.
Q. Where is the next one?
A. 13th.
688 Q. Where is the next one?
A. York would be next, we have no main under that. Then comes east 14th.
Q. So you have five crossings from Pennsylvania to east 14th street?
A. Yes, sir.
Q. Where are the railroad crossings in west Des Moines?
A. They are down on the Wabash, Rock Island and Q.
Q. Your mains on all north and south streets cross the railroad?
A. Not all of them no sir.
Q. Tell us which streets?
A. At Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth and Ninth.
Q. Are these branch mains?
A. No, sir; direct.
Q. How far south do they go?
A. Well they vary.
Q. The one on First street how far south does it extend?
A. Extends just a little bit north of Elm.
Q. The one on Second street?
A. Just on the south line of Elm.
Q. The one on Third?
A. On Third street it goes to between Market and Elm.
Q. The one on Fourth street?
A. Fourth street goes to the south line, well goes south of the south line of Elm.
Q. Fifth street line?
A. Fifth street goes clear into South Des Moines.
Q. Is that where you cross the river?
A. Yes, sir.
689 Q. Crossing on the 5th street bridge?
A. Yes, sir.
Q. Now the Sixth street line, how far south does it extend?
A. Sixth street doesn't go south of——
Q. Does it go south of Cherry?
A. No.
Q. Stops at Cherry street does it?
A. Yes, sir.
Q. The Seventh street line?

A. Goes clear down the other side of Elm, south of Elm.
Q. How far south of Elm?
A. Well I would say about 200 feet.
Q. And is that the western terminus of the north and south mains?
A. No, sir.
Q. Where are your others?
A. Have one on 8th steret.
Q. Where does it run?
A. Runs down by the Des Moines Casker Company. I disremember the name of that street down there. And southwest Ninth continues south across the southwest Ninth street bridge.
Q. This 8th street line does it extend as far south as Tuttle or Murphy street?
A. Yes, on south of Tuttle I would say fifty or seventy five feet.
Q. The Ninth street line that is the one that g-es across to South Des Moines on to Park Avenue?
A. Yes, sir.
Q. That is the terminus of the South Ninth street line, is a little below Park avenue?
A. Yes, south.
Q. Any mains or branches running off of southwest Ninth
690 street?
A. West of Ninth street?
Q. Yes.
A. We have a main on 10th street.
Q. Where is that located?
A. The first part of 10th street is in between Mulberry and Cherry and then it starts again at Locust street and goes north to a little bit north of Woodland.
Q. That don't cross any railroads?
A. No, sir.
Q. Have you any mains running south of Ninth street which cross railroad tracks or under railroad tracks?
A. No, sir.
Q. Are there any duplicate mains between First and Ninth street running north and south?
A. Well I don't believe I understand your question. What do you call duplicate?
Q. I mean are ther- any streets north and south through which the company is maining in its distribution syste-, more than one main?
A. Yes, sir.
Q. Where are those streets?
A. Second street.
Q. How many mains in Second street?
A. Two part of the way.
Q. Just tell us how far south they extend?
A. Second street one of the mains extends down south of Elm street on the south line of Elm and the other one goes to the Wabash south.

Q. And where these mains go under the railroad rights of way you have treated them as two railroad crossings?

691 A. Yes, sir.

Q. Have you any duplicate mains on any street west of that point besides the mains on Second street?

A. Well replaced the main, if you call that a duplicate.

Q. Do you keep two mains, maintain two mains?

A. We don't at the present time, but they were put in at different times.

Q. What street are you referring to?

A. I am referring to Fifth street.

Q. Have you two mains in Fifth street?

A. Not in use.

Q. Well are there two mains there?

A. Yes, sir.

Q. How far south do they extend?

A. One of them goes down just a litle bit south of Elm and the other one continues on over to the south side.

Q. You have shown upon this inventory two railroad crossings every time these mains go under the railroad rights of way, isn't that true?

A. Well, I don't know in regard to that particular instance. As I said before I didn't make the footings on this I only got data to make it by.

Q. These two mains do pass under railroad rights of way?

A. Yes, sir.

Q. And as far as you know they are treated as crossings each of them.

A. My better judgment will say that they only treated them as one crossing simply because one main is in use and the other is not.

Q. When was the one discontinued?

692 A. Well that is a good while ago.

Q. About how long ago.

A. I would say something about 10 or 12 years ago.

Q. That was in 5th street and that was how large a main?

A. That was a three inch.

Q. There were service connections made to that main?

A. Yes, sir.

Q. When did you put in the second main in that street?

A. Well at the same time we abandoned that one.

Q. You don't mean to say you put them both in at one time?

A. I didn't say we put them in. You asked me what date that one was abandoned.

Q. In what year, I want to know when you put in the second line on Fifth street?

A. Well about ten years ago.

Q. Did you disconnect the service from the old main?

A. Yes, sir.

Q. Disconnected them?

A. Yes, sir.

Q. How many?

A. Well I could not give you the exact number.

Q. Tell us about the number?
A. I would say the neighborhood of twenty five.
Q. Do you know whether any services had been made to the old main?
A. No, sir; there has not since that time.
Q. At any time has the old main been used by the company in serving customers?
A. No, sir.
Q. You say there is not a single customer served by the old
693 main on Fifth street?
A. That is what I say.
Q. Does that appear in the amount of mileage or feet of mains in this inventory?
A. No, sir.
Q. Sure about that?
A. Yes, sir.
Q. Have you checked it over to see whether it is not included?
A. Yes, sir.
Q. When did you do that?
A. Oh at different times.
Q. When did you do it last?
A. Well the last time I think was possibly a month or so ago.
Q. Did you call attention to this abandoned line on Fifth street?
A. I did before the spetch was made.
Q. Are there any other abandoned lines?
A. Yes, sir.
Q. Where are they?
A. We have one on Third street from Grand Avenue to Center.
Q. What is the size of that main?
A. It was four inch.
Q. The main remains in the ground?
A. Yes, sir.
Q. Service connections still there?
A. No, sir.
Q. When were they disconnected?
A. Well from 1890 on, I disremember the year that we abandoned the main, but we reconnected them on the six inch line recently after the sixth inch line was laid in 1890.
Q. And left the old main in the street?
A. Yes, sir.
694 Q. Have you any other abandoned mains?
A. One on Mulberry.
Q. Where on Mulberry?
A. From Fifth to Seventh.
Q. That is not in use to any extent?
A. No, sir.
Q. When was the use of that main discontinued?
A. Oh I would say about three years ago possibly or four. That it was discontinued at different times from 5th to 6th was discontinued a year previous to the one between 6th and 7th.
Q. Is it used to any extent now?
A. No, sir.

Q. All services disconnected?
A. Yes, sir.
Q. When were they disconnected?
A. Oh we simply do that as fast as we could get to it.
Q. You went along Mulberry street and put in a new main?
A. No, sir.
Q. And uncovered the old main and disconnected——
A. We didn't uncover the old main.
Q. How did you disconnect the services?
A. Opened a hole over the main and cut them off and continued them on the new one.
Q. Set the services on the new main did you?
A. Yes, sir.
Q. What other abandoned mains are there?
A. I don't think there is any other that I can call to mind right now.
Q. Can you call to mind any north and south streets between First and southwest Ninth street where you have two or more
695 mains in any one street in addition to those you have enumerated?
A. No, sir.
Q. I believe you said something about lamp posts. Do you know who owns the lamp posts?
A. No.
Q. Don't know anything about that. Do you have anything to do with them?
A. No, sir.
Q. Did you set them up?
A. Yes, sir.
Q. When?
A. Different times.
Q. Were they installed by the Capital City Gas Light Company?
A. Some of them was.
Q. Have you installed lamp posts within the last two or three years?
A. Yes, sir.
Q. How many?
A. I could not say as to that. I didn't keep a record of them. It is not pertaining to my department at all, except to make the connections. That goes on the lamp record.
Q. Who keeps the lamp record?
A. It is kept by the office, I don't know what person keeps it.
Q. You have nothing to do with that?
A. I have not.
Q. You have no personal knowledge as to the source from which these posts were received do you?
A. No, sir.
Q. You were simply directed to make the connections?
A. Yes, sir. And erect the posts.
696 Q. Did you cause the holes to be dug and posts installed?
A. Yes, sir.

Q. That was all under your direction?
A. Yes, sir.
Q. Can you tell us about how many lamp posts you have installed within the last five years?

Objected to as not material and improper cross examination.

A. I have not any access to know that.
Q. Do you have a sketch or any record which you turn in to the company?

Same objection.

A. I have a card directing me to erect the post at a certain point. When that post is erected I fill out that card and return it to the office.
Q. What record do you make upon that card?
A. That is all, the descriptions of the location of the post. If it is on a corner I designate which corner. If between blocks the same applies.
Q. Do you know by whom the orders are signed which directs you to install the posts?
A. Well at the present time they all come through the engineer's office to me.
Q. Which engineer's office?
A. The Gas Company.
Q. Philadelphia?
A. No, sir.
Q. Des Moines?
A. Yes, sir.
Q. Who is engineer in Des Moines?
A. Mr. Vincent.
697 Q. And bear Mr. Vincent's signature?
A. Not exactly his signature, no. Just merely draw his attention to the fact and then pass them on to me.
Q. When you got an order to install a lamp post say 4th and Walnut streets, who would authorize on behalf of the company the installation of that lamp post?
A. Mr. Vincent I suppose.
Q. Do you remember that Mr. Vincent's signature was upon all these orders to you?
A. No signature at all except filling out the card and placing in my till and that is orders for me to place the lamp post which I do and then I return the order back to the engineer's office.
Q. That order is not signed by any one.
A. No sir.
Q. A card is left at your desk?
A. Yes, sir.
Q. Are there any instructions upon that card?
A. Yes, sir.
Q. In a general way what are the directions?

Objected to as incompetent and immaterial.

A. Right where they want the posts set.
Q. Who looks after the placing of the posts, that is from the rail-

road train or wherever it is received in the city, who looks after taking it to the place it is to be erected?

Same objection.

A. Who looks after the erecting of the post.

Q. No, who looks after bringing the post to the place where it is to be erected.

A. It was up to me.

698 Q. Was that on this card?

A. No, sir.

Q. Where would you get the directions and from whom?

A. I don't get any directions.

Q. Well suppose you found a card on your desk you were to erect a post in a cer-in street in the city where would you get the post?

A. Go down to the works and get it and take it out and erect it.

Q. They have them in stock have they?

A. Yes, sir.

Q. You say they you have kept a very complete record of the amount of labor in the extension of the distribution system of the company. Does that record include as well the amount of material used?

A. Only to a certain extent.

Q. Well to what extent?

A. My return shows the amount of material used in either service of main extensions such as cement, yarn, cast iron, or wrought iron pipe and specials connected with it and amount of labor to take it to the place, cartage going on to the job and going from the job, removing tool carts from job to job.

Q. In other words, you were not furnishing a complete itemized statement and record of the amount of material used or the kind of material used or amount of labor or amount of time consumed in taking material from the cars or from the works to the place where they are being laid in the streets?

A. That is included.

Q. Together with the sketch?

A. Yes, applying to the extension.

Q. With regard to repair work, how is that handled?

699 A. Well that is handled in my department by practically the same method. The repairs generall- comes to me on a card directing me to a certain complaint. I generally go in person and see that the complaint is and then authorize somebody to return and repair it, whatever the need may be.

Q. What record is kept on the repair work?

A. On large jobs the same record is kept the same as extensions. But small jobs it is not, small jobs go into the general fun-.

Q. You keep a record of what the men are doing under you and where they are working do you not?

A. Yes, sir.

Q. Doing repair work today you have some record to show that?

A. Yes, sir.

Q. And the place in the city where they have been working?

A. Well I don't designate that, not at all times.
Q. In a large repair job you do?
A. Yes, sir.
Q. And if you had John Doe working for you today on repair work you say John Doe worked on repairs ten hours or eight hours or during the hours he was in fact employed?
A. Yes, sir.

Redirect examination by Hon. GEORGE H. CARR:

Q. You said as you recalled it, there were no mains crossing the railroad tracks north and south west of 9th street. I call your attention to 11th street and ask you whether there is not a main that crosses the tracks or some of them north of Tuttle on 11th street?
A. Well that crosses the switch going into the Q round
700 house, that is true. Then another place I didn't specify was the line going to the army post distribution at the Great Western at the end of the bridge. I didn't specify that.
Q. In your examination by Mr. Brennan you did not undertake to specify or he did not ask you concerning all railroad crossings did he?
A. I think he did.
Q. Is there no crossing on the Great Eastern and east and west crossing in east Des Moines?
A. The only time we cross the Great Western in any way is on Grand Avenue.
Q. You mean on the east and west streets in east Des Moines.
A. Yes, sir. We cross it there and then cross on Easton Boulevard again. That is the Iowa Falls both along with the Great Western.
Q. Then there are crossings on the Great Western and on the Iowa Falls or what is not the Rock Island, Mason City line?
A. Yes, sir.
Q. They are crossings to which your attention was not directed in the cross examination?
A. Yes, sir.
Q. In the crossings to which your attention was called on First, Second and other streets in West Des Moines, do you have more that one railroad crossing on each of those streets?
A. Yes, sir.
Q. And how many do you have on some of them, give the court an idea of whether many of them or not. Take 5th street, going down Fifth street I think you will cross under about somewhere in
the neighborhood of 15 or 20 tracks. Take on Ninth street
701 you will cross possibly about ten or twelve. Now Fourth street you will cross about eight or nine.

—. ——.

Q. I don't want to go into the subject now in detail except to show the general situation of these crossings.
COURT: You count each track a crossing?
A. Yes, sir.

COURT: Where there are three tracks or two tracks together?

A. Count each one of them a track, yes.

Q. You yesterday spoke of the average length of service. Now let me ask you what the situation is or what the fact is with regard to average length of service in the last seven years say whether the average length is the same during that period that it was at an earlier period and if not why not and go on and explain to the court?

A. The last seven years I would say the services are longer now than they were previous to seven years ago, basing my decision on the fact that we have *haten* in more outskirts and the services are considerably longer in the residence district than it is in the business districts. Previous to seven years ago we done a great deal of down town work that we haven't done in the last seven years.

Q During that period your construction and extensions and putting in of services, the majority of it has been in the residence district?

A. Yes, sir.

Q. The construction in the residence district as it is now, how does that compare with the construction in the residence district years ago? As to whether the services are generally longer on account of the lots being larger and the houses set back further from the street than they do in the older portions of the city?

702 A. The services within the last six or seven years in all new additions or new extensions, the houses are set back further from the street than they are down town. It is necessary then that the services are longer.

Recross-examination by R. O. BRENNAN, Esq.:

Q. Just what additions in the city of Des Moines do you have in mind in which the houses are farther back from the street than formerly?

A. Take the northwestern part in these new additions all very long services.

Q. Which new additions?

A. Take it anywhere on Kingman Avenue west of 28th street and north of that and south in towards Grand Avenue and west?

Q. Do they differ any from the homes along west Grand Avenue?

A. Yes, sir.

Q. Farther back from the street line?

A. Most of them are. That is the biggest majority of them are.

Q. Farther back from the street line than homes on West Grand Avenue?

A. Not in particular on Grand Avenue, no. There are too some on Grand Avenue.

Q. That is just one little section of the town you have mentioned?

A. That applies to North Des Moines the same way north the new additions.

Q. What new additions are laid out in North Des Moines?
A. That is where we made our extensions.
Q. What part?
A. Where we have made extensions.
703 Q. Are there any new additions in North Des Moines south of the Des Moines river?
A. No, sir.
Q. The city is the same there it has been for twenty years?
A. Did I say North Des Moines?
Q. Yes.
A. Excuse me, I meant Highland Park. Where I say new addition I meant really extensions now.
Q. What new addition has been made to Highland Park?
A. A large territory north of Clinton and west of Sixth Avenue and east around in there by the college.
Q. That is the same as it has been the last ten or fifteen years so far as the dimensions of the Lots and general location of the buildings on the lot?
A. When I said new additions I meant new extensions made in the territory.
Q. I understood you to say on account of new additions being laid out to the city a change had been made in the manner of building houses, that that accounted for the extra service or the length of service that you were required to make?
A. Well I didn't mean the laying out of the additions, I meant the new extensions we had made is what I have reference to in new additions where we supply.
Q. Suppose you run a main along what would be a street in which you had not a main formerly, you don't mean that the houses are so far from the street in these new parts of the city that it makes up for this extra amount of length of service do you?
A. I said that in most of the—for the last seven or eight years the most of our extensions was in new territories where houses
704 sit back off the street farther than they do in the nearer territory.
Q. Just where is that territory where the houses sit far back from the street?
A. Take anywhere in the town at Kingman Avenue west, take Ingersoll Avenue, anywheres along on that.
Q. Isn't it true on Kingman Boulevard, clear out to Waveland Park that the homes along that street run back to any considerable extent from the curb line, now isn't that true?
A. They are back considerable distance. Takes 125 feet of pipe to reach from the curb to the building in most instances.
Q. You have two mains in Kingman Boulevard?
A. Yes, sir.
Q. One the north side and one the south?
A. Yes, from 35th street.
Q. You say the homes along Kingman Boul-vard are 130 feet from that main?

A. Takes 124 feet of pipe for that service, some might be more and some less.

Q. The main in the center of the street?

A. No, right a-ong the side of the curb line.

Witness excused.

705 E. P. WALTER recalled on the part of the complainant and examined in chief by Hon. George H. Carr, testified as follows:

Q. You stated that data which you obtained for making the inventory for the distribution system was obtained from records. I want to ask you whether your answers apply to the entire inventory that you made such as for example the distribution tools?

A. The distribution tools was made from an inventory of the tools themselves, not from any records.

Q. Will you please take Exhibit 15 and turn to that portion of the inventory which shows the distribution tools?

A. Pages 253, 254, 5, 6, 7, 8, 9, 260, 261, 262, 263 and 264 are the complete pages.

Q. I will ask you Mr. Walter to state whether that part of this inventory which is denomenated distribution tools and which is found on the pages that you stated in your last answer, was made from an actual inspection and count and listing of the articles themselves?

A. Yes, sir.

Q. And was not made from any record?

A. Not made from any record.

Q. You did not inventor- the works tools?

A. No, sir.

COURT: Then from 245 to 252, that was not made by your?

A. No, sir.

COURT: It is onely from 253?

A. 253 to 264.

Q. On page 265 Mr. Walter?

706 A. That is the stable equipment.

Q. By whom was the inventory of the stable equipment made?

A. This was taken under my supervision. This inventory was made from actual counting of the items as enumerated.

Q. Is that a correct list and inventory of the company's property as shown there?

A. Yes, sir.

Q. You did not make an inventory of the office furniture as I remember it?

A. No, sir.

COURT: You did the stable equipment?

A. Yes, sir.

Q. Now Mr. Walter, with respect to the matter shown on page 209 the data there was that data furnished you by Henry Moul, did he work in connection with you?

A. Mr. Moul checked over all street main maps from which these measurements were obtained.

Q. What do you say as to whether the computation or calculations rather that are expressed in these figures were correctly made?

A. I think they are as correctly made as it is possible to make them.

Objected to for the reason the figures are the best evidence of what they show.

Q. These computations as expressed in these figures shown on page 209 you say were correctly made?

Same objection.

A. Yes, sir.

Q. And these figures appearing on page 209 show the results correctly of the computation made from the records and data
707 furnished?

A. Yes, sir.

COURT: In other words, you did the adding up did you?

A. Yes, did all the compiling and most of the scaling of the plats.

Q. Turning to page- 211 212 and 213, do those figures appearing there express correctly the result of the calculations made from the data furnished?

A. Yes, sir.

Q. Is that true also of what appears on page 14?

A. Yes sir.

COURT: Those are a summary of the totals?

A. These are a summary of these figures on page- 211, 212 and 213.

Q. Turning to page 221, paving over service, do the figures as appearing on that page and on page- 222 223, 224 and 225, express truly and correctly the result of the calculations made from the data furnished?

A. Yes, sir.

COURT: You got that data from the record or from Mr. Moul?

A. This data is compiled entirely, the length of service by computing the length of the opening, the length of paving that would be cut over each service.

COURT: 221 seems to be the number of services?

A. It shows the number of services under the paving of that character and also shows the total lineal feet of paving over all the services and the total lineal feet is computed in there.

Q. Henry Moul worked with you in furnishing data and information in connection with those tables just as in connection with the tables as to the paving over mains?

708 A. Henry Moul checked up the paving in all cases.

COURT: This relates to the service does it including the lamp posts?

A. That includes the lamp posts as well as the house service.

Q. After this inventory was prepared by you from the sources of information obtained so far as it relates to the mains services and

meters, I wish you would state to the court a little more particularly what you did to ascertain from an actual checking of the property the accuracy of your inventory?

A. In counting the number of meters those were counted from the meter record books of the company. I think the only way of checking that up would be to make a personal canvass to each house in which there is a meter, that was not done. We checked up about 50 per cent I should judge of those locations.

Q. Where you checked for the purpose of testing the accuracy of the record, what was the result of that checking?

Mr. Byers: We are not going to question the number of these meters.

Judge Carr: If that is made as an admission in the record I will spend no more time on that.

Q. Did you at the close of your cross examination on yesterday cause to be brought into court all of the records to which you referred or consulted in making this inventory?

A. I think all of those records were in *force* yesterday afternoon.

Q. To what books of record did you first refer in the court- of your work?

A. To the meter route books.

Q. I wish you would get such books together and produce
709 them so they can be marked.

Court: Do you insist upon the records that have been referred to here by Mr. Walter and by Mr. Moul being verified and made exhibits here by the complainant before they can be considered by the court, that is the results of the record that the experts testified with reference to.

Mr. Byers: We have never even suggested that we would insist upon having all of these books brought into court. All we have asked for is that the witness make a complete compilation of the books and records covering the period of his investigation and if it should develop upon the cross examination of this witness after he has responded to the direction of the Master to make a further compilation, that there is any particular records that we desire — use in the cross examination or if in the further progress of the trial, we will ask for it.

Mr. Read: You do not insist of record that the records be identified and verified.

Mr. Byers: I have stated fully in the record.

Mr. Read: You have not answered the question. Do you insist upon their being identified and put in evidence in this case before the results *wo* which the experts testify may be considered?

Mr. Byers: We do not at this time your honor at all, but of course we cannot be required to state in advance of further examination just what we may want as we proceed with this witness.

Mr. Read: You have also made the statement that you ask that the witness Walter make a complete compilation of the records. I understand that to be only to the extent that you have re-
710 quested.

Mr. Byers: I said as the Master directed him yesterday.

COURT: If there is any record he wants he can call for it on cross examination.

Mr. BYERS: We do not intend to put anybody to any annoyance or trouble or be captious about it.

Mr. READ: Then to make it real sure I understand the identification or production of the records is not required in order to render the testimony of the witness competent?

COURT: That is the way I understand it.

Q. Will you refer to one of the records you mentioned a moment ago, meter record, take any one you choose. I wish you would state to the Master what such records purport to contain, what information in a very general way.

A. This record is for the use of the men reading meters in the consumer's house and each leaf or page in the book represents one meter, the number of that meter is on here with the size, the consumer's name and the consumer's address. In the bottom of that page is left spaces in which the reading of the meter is put down each month in the year.

COURT: You can by the reading of the meter, — the amount of gas.

A. The amount of gas consumed each month. In other words, these books represent all the meters in use by the gas company, that is in use by the consumers.

Q. At the particular time?

A. At any one particular time, yes. In some instances the gas might be shut off of the meter and it would not be in use still it might be in the meter route book at the same time.

COURT: How could you tell from these records if it was not in use?

711 A. A record is kept in the company's office of all meters that are shut off.

COURT: How could you tell from this it was shut off?

A. From this I could not tell that that *that* meter was not in use.

COURT: There are other records that give you that information?

A. Yes, sir. The meter reader is supposed to go to each address in these books and read his meter. The meter might be shut off in a consumer's residence by one consumer and someone else move in a few days afterwards and the gas be turned on again. The man who reads the meter would not know anything about it. Consequently he goes there each time to read that meter.

COURT: That would show then frequently by the fact there was no gas charged?

A. Yes, sir. In a great many cases he would not be able to get in the house.

Q. The man that reads the meter makes the entry in the book?

A. In the route book of the consumption, or the index of the meter.

Q. That is the consumption.

A. That is not the consumption, no sir. He read the meter last month that had a certain index. Now he goes there the end of this

month and reads it again and the consumption is the difference between those two readings.

Q. Does the man that reads the meter make that computation?

A. No, sir.

Q. What is done with the information obtained by the reader of the meter?

A. The man who reads the meter writes that right in this
712 book and that book is turned into the office and the ledger clerks transfer that information into their books and do the computing.

Q. Then the information obtained from reading the meter is the basis from which the charges for the gas are made?

A. Yes, sir.

COURT: Does the man that reads the meter collect?

A. You mean collect the bills, not necessarily. I think very seldom that he does. The man who reads the meter does collect from prepayment meters.

Q. The collection of the bills follows later after the reading of the meters?

A. Yes, sir.

Q. That may or not be done by the same man?

A. Yes, sir.

Q. What use did you make of such books in doing your work in connection with the inventory?

A. In connection with the inventory I took these various meter route books and listed all the house numbers by streets in which there was a meter. For instance in this book are numbers on Mulberry street, one page 610, another 618, 614, 610, 608, 602 Mulberry St. I listed those various numbers all up in rotation.

Q. All the numbers you found in the record?

A. Yes, sir. Those numbers show the location of the meter.

Q. That was the purpose and object of your work in that respect was it?

A. Yes, sir.

Q. What was the next step?

A. Following that we referred to the service records.

713 —. Now will you turn to one of those services records? Do you have now in your hand one of the service records?

A. Yes, sir.

Q. What information does that record purport to give and in a general way explain the system of keeping the record?

A. That record is made out by the street main foreman on the work and gives the name of the consumer his house number and street. Also the date and kind of building.

Q. Date of installation?

A. Date of installation of the service, the kind of building to which the service is run. The character of the service, whether it is new service or renewed service. By that is meant old service that is for some cause leaking or old or has to be enlarged, that is called renewed service. Gives the size of the service, the length of the service in feet and inches, the size of the tap by which is meant size of

the hole that is drilled in the main in the street and the location of the service in relation to the line of the lot of the house. The kind of joint which is used at the street main and whether there is a curb top on the service, whether there is a service box on the service and whether the service pipe is quoted or not. Also shows location of the main, the size of the main and the depth of the main, depth from the top of the surface of the ground.

Q. What do you mean with reference to the location of the main? The card shows location with respect to what?

A. To the curb line or the property line of the street.

Q. What use did you make of the information furnished by and obtained from these service cards, in making up the inventory made by you?

714 A. All these service car-s represent one service as counted in the inventory and in connection with that the mains on the plates shown in Exhibit- 17 and 18 are checked with these cards.

Q. You mean each card represents one service.

A. Each card represents one service. The sizes of the mains as shown on the maps were checked off from the size shown on the service cards. In some instances there were service cards and service on streets on which no main was shown on the map. In a case of that kind we made investigation to see the size of the main that was in the street and verified that either by the sketch records or by Henry Moul.

Q. You say an investigation was made?

A. Yes, sir.

Q. What as the character of the investigation?

A. Either on the records of the sketch books in which each main as laid is shown in detail and if we got no information there Henry Moul was consulted to see if he knew of the main being laid there and size of the main.

Q. Have you now given the extent of the use made by you of the service cards in making up the inventory, if not you may continue.

A. I think so.

Q. What was the next record you resorted to or records in making up the inventory?

A. The meter record books.

Q. Will you turn to one of such books?

A. I don't think they are here. They are a large ledger showing the number of the meter, also the size of the meter by whom the meter was manufactured and date the meter was purchased.

715 Q. I now ask you to state what use you made of the meter record book in making up your inventory?

A. The meter record book was used to obtain the number and size of meters in use in the city of Des Moines.

Q. The number, you mean the total number or number of the maker?

A. The total number of meters by size and kind owned by the gas company.

Q. That comprehended meters in use and those not in use?

A. Yes, sir.

Q. Then the meter record book shows a history does it of each meter purchased by the company?
A. Complete history of each meter.
Q. From the time of its purchase until its final elimination?
A. Yes, sir.
Q. So that you used that record for the purposes just stated?
A. Yes, sir.
Q. What is the next record resorted to by you?
A. The next record was the street main map.
Q. Will you turn to such map?
A. Exhibits 17 and 18 are this map.
Q. Are they original maps?
A. They are not original maps, they are photographs.
Q. You didn't have recourse to these exhibits 17 and 18?
A. No, sir.
Q. You had recourse to the original map?
A. To the original map.
Q. Where is that map?
A. It is at the office, in the gas company office.
Q. Have they been brought down here?
A. Yes, they were here yesterday.

716 Mr. BYERS: Proceed on the theory they are here.

Q. What information do such maps purport to give?
A. These maps show the size of all mains in the streets and the location in a general way, not an accurate location, the maps are too small to show an accurate location of the mains in relation to the curb.
Q. How many of such maps did you consult?
A. Three. One showing the eastern half of Des Moines, one the western half of Des Moines, and one showing a small extreme part of the western half of Des Moines. Also Valley Junction that map shows.
Q. What did these three maps have to do with the making or production of the two large maps, exhibits 17 and 18?
A. From these original maps a tracing was made, these maps being old and not in a proper condition to have a print taken from them. New tracings were made from these maps checked and verified by Henry Moul and from these new tracings these reproductions were made.
Q. Then a reproduction was made?
A. By photograph.
Q. What use then did you make of the original maps of the reproduction in making your inventory?
A. The sizes of the mains and the length of the mains were scaled from these original maps and those sizes and lengths are the final results as shown on page 209 of Exhibit 15.
Q. What other records did you consult and obtain information from in making up your inventory if any?
A. We used the valve records for getting the number of valves

and the sizes of the valves on the street mains, also the drip records for getting the sizes of the drips.

717 Q. Before going into the drip records have you present in the court room any of the valve records?

A. Yes, sir.

COURT: If I understand it right these valves are used to cut off gas at any point?

A. Yes, sir.

Q. You have in your hand now one of the valve records?

A. Yes, sir.

Q. What do such records purport to show?

A. These records show the nearest house number, the location of the valve from the nearest intersecting street or from the nearest house line, the size of the main, the depth of the main and the location of the main, the kind of valve and the size of the valve and the direction in which the valve turns to open.

Q. By whom are such cards made, what employé of the company?

A. By the main foreman.

Q. That is true of the service cards also?

A. Yes, sir.

Q. Do they purpose to be made up at the time the work was done?

A. I don't think they are always made up at the time the work is done. The location of the valve is made at the time the work is done. I don't think the card is always made out at that time.

Q. I don't mean at the instant of time, but immediately.

A. Well, yes, it is done practically at that same time.

Q. What use did you make of the valve cards or record cards in making up your inventory?

A. I used the valve record cards to get the size and the number of valves as used on the distribution system.

718 Q. The size and number as thus obtained were carried by you into the inventory?

A. Yes, sir.

Q. The result of your information obtained from the valve cards appears on Exhibit 15, at what page?

A. Page 215.

Q. You may turn to some of the drip cards. By whom are they made out?

A. They are made out by the street main foreman.

Q. What do they purport to show?

A. The nearest house number to the location of the drip. The location of the drip in reference to the nearest intersecting street or nearest house. The size of the main on which the drip is located, the depth to the top of the main from the surface of the ground. The style of drip, the capacity of the drip and the class of the drip.

Q. You have said these cards were made up by whom?

A. The street main foreman.

Q. What use did you make of the information afforded by those cards?

A. I used these drip cards for obtaining the size and the number of the drips in use on the distribution system.

Q. Did you carry that information into the inventory?

A. That information is in the inventory exhibit 15, on page 215.

Q. What other records, if any did you have recourse to. You have referred to the street main sketch book. Have you one now in your hands?

A. Yes, sir.

Q. What information do those books or records furnish?

719 A. These sketch books show in detail the location of the mains on the street, showing the distance from the curb line or the property line, the total length of the pipe laid at that particular time, any specials used, the location of any old mains connected to and the end of the main, the dead end of the main. I think it also shows the location of all the drips and all bends or specials that are used.

Q. How are such records made up, what is the genesis of its various stages?

A. These records are made up from information furnished by the main foreman who gets his data at the time the work is done.

Q. Are the sketches that the main foreman refer- to in his testimony which he makes and file- on the completion of the job the basis of this compilation?

A. Yes, sir.

Q. They are copied and transcribed into this book?

A. Into this book.

COURT: Is that done by the engineer of the plant?

A. The transfer of the data from the card to the pages is done by *what* cadet engineer, he does that character of work.

Q. He sketches this?

A. Yes, sir.

Q. What use did you make of the information contained in this book?

A. The information in these books was used in checking up the original street main map to see that the street main map was correct as to showing location of the main and size of the main and the street in which the main was laid.

COURT: Does that give the date of the work?

720 A. I think so, yes. Gives the authorization number, completed such and such a date and initials of the engineer who put the sketch in the book?

Q. What is the authorization that is there referred to, what is the character of it, from whence does it emanate, do you know?

A. That comes from Philadelphia.

Q. That is the initial step is it?

A. No, sir; the initial step starts from the gas company in Des Moines.

COURT: I understand this engineer simply orders the work done and these initials show it is done by his orders?

A. These initials on here, no sir. These initials show the person who drew this sketch, who transferred the data from the card handed in by the street main foreman on to the sketch book.

COURT: But gives the date on which it is done?

A. Yes, sir.

Q. The records to which we are now referring show the date of the doing of the work do they?

A. The date of the completion of the work. In case of a small job that would be the date of its starting too, be all done in one day. A large job might be started a week or two before.

Q. You checked then the main maps with this information?

A. Yes, sir.

Q. And the result of all your work in that respect appears in the inventory?

A. Yes, sir.

Q. Were there any other records which were consulted by you or from which you derived information in making up your in-

721 ventory, if so you may now produce them?

A. Here are these meter record books referred to awhile ago.

Q. You may tell what such records purport to contain, you may explain the method of keeping that record and also what information is there recorded.

A. As the gas company purchases meters, when they are first put into stock or before they are put into stock each meter is badged with the gas company badge, these numbers originally starting from one and running up to the present time I suppose over 20,000, possibly 21,000 now. Then these numbers, meter numbers are registered in the meter books and following the meter number is the name of the maker of the meter, the size of the meter and the maker's number on the meter and the date that the meter was purchased by the gas company. Following that information is the information as to the time any one particular meter was set and a reference to the page and the folio of the consumers' ledger books which show the address and the consumer's name at that address who is using that meter. When the meter is removed there is another column showing the location of that.

Q. Let me interrupt by asking if the consumers' ledger shows the number of the meter?

A. Yes, sir.

Q. The same number as appears in this record here?

A. Yes, as a gas company number.

Q. You may proceed and complete your answer?

A. The meter record book also shows the index of the meter, the day at which it was set and when it was removed shows the date of removal, also the index of the meter at the time of removal. It also shows the date on which the meter is tested, also showing

722 the test, that is percentage fast or percentage slow that the meter may register when it is tested.

Q. Does it show when the meter was repaired if that did occur?

A. Yes, shows the date that the meter was repaired and the location at which the meter was repaired.

Q. In short, it is a record of the history of the meter?

A. Yes, sir.

Q. From the time of its purchase?
A. From the time of purchase until each meter is condemned or lost or stolen or burned up by fire.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

723 Friday Forenoon Session.

JULY 21, 1911, at 9:30 a. m.

Counsel for the respective parties all present.
Testimony on part of complainant resumed as follows:

E. P. WALTER, re-called for further direct examination examined by W. L. Read, Esq., testified as follows:

Q. Was there any other record from which you obtained information than those already mentioned; if so, what was it?
A. Yes, sir; there is a lamp record; record of the street lamps.
Q. You may produce these records, or one of them, and state what they purport to show, by whom made, and when those records are made.
A. The street lamp record shows the location of the street lamps, giving the distance from the nearest intersection of the street; the number of the house which the lamp is in front of, if it is in front of the house, the style of lantern upon the lamp, by whom the lamp post was erected and the date; by whom the top of the lamp was put on and the date; by whom the lamp was removed and the date; the time the service was removed or abandoned and the date; also the size of the main to which the lamp service is connected. This is made out *my* the street main foreman.
Q. What use did you make of the information derived from these records?
A. Each one of these records shows a street lamp that is being used at the present and these records were counted and the number of lamps obtained from that count as shown on page 216 of Exhibit number 15.
Q. Were there any other records resorted to by you?
724 A. I think not.
Q. Was there included in the inventory any dead mains?
A. No, sir.
Q. The dead mains were all excluded?
A. Yes, sir.
Q. What about services that have been plugged up, were they included?
Q. You mean abandoned services?
Q. Yes.
A. All services which had been abandoned were not counted, services which were not in use—by not in use I mean services which do not have a meter on at the present time but in which there was gas, was counted.
Q. Abandoned services were not counted?
A. No, sir.

Recross examination by R. O. BRENNAN, Esq.:

Q. At page 227 of Exhibit 15, I believe it is Mr. Walter, you have an item near the bottom of that page, 2,000 Lt.—just what kind of a meter is that?

A. That is very commonly known as a station meter, a meter that is used in measuring gas at the manufacturing plant, an extraordinarily large meter.

Q. The letters Lt. what words do they embrace?

A. Light.

Q. You seem to have the meters scheduled in two columns, one ordinary meter and top A meter. What is the difference between ordinary meter and top A meter?

A. The difference is in the capacity of the meter. The ten light A meter has a capacity, I think, of about three times that
725 of the ordinary ten light meter.

Q. And the pre-payment meters, of course, are the ones where twenty-five cents is inserted and the gas paid for before it is used?

A. They are meters with the pre-payment attachment.

Q. What is the purpose in distinguishing type A meters from the other meters?

A. The type A meter is a more expensive meter to build.

Q. Now, you referred in your testimony on yesterday to one of the sketches or records with reference to extension work, I think it was a card perhaps.

A. I didn't have any card; they are here though.

Q. Let me ask you this, now: The local Company here makes a request on the Philadelphia office for extensions, as I understand it?

A. Yes, sir.

Q. And then there is an authorization comes from Philadelphia?

A. Yes, sir.

Q. And upon that authorization the extensions are made?

A. Yes, sir.

Q. Have you got one of those main records you referred to on yesterday, the card showing the manner in which the mains are extended?

(Witness produces it.)

Q. Mr. Walter, in your testimony you have made some reference to the main records kept in the office of the Des Moines Gas Company, and I now show you one of such records, marked Defendant's Exhibit No. 3, and ask you to state if that is one of the records to which you referred and from which you made up in part this inventory?

726 A. This record was used in confirming the information as to the mains on the maps; as to whether I referred to this special record, I could not say.

Q. Now this "Des Moines Gas Company Street Main Construction Order Requisition No. 565", do you know from what source the requisition referred to originates?

A. That comes from Philadelphia; that is the requisition giving the authority.

Q. Is that the requisition from the Des Moines office?

A. Where that number is from I don't know.

Q. This requisition shown on this Exhibit 3, number 565, under date of November 19, 1910, and then immediately following that which I have read is the authorization No. 320, under date of December 5, 1910?

A. Yes, sir.

Q. Now, I will ask you if that indicates that this requisition No. 565 was made here at the Des Moines office and the authorization is from Philadelphia?

A. I would like to change what I said previous to that. The requisition number does not come from Philadelphia; it comes from Des Moines; that is making application for a main; the authorization comes from Philadelphia.

Q. Can you get the authorization under date of December 5, 1910?

(Witness produces record.)

Q. Mr. Walter, I show you the record which the reporter has marked Defendant's Exhibit No. 4, and I will ask you to state what information that record purports to give?

A. This authorization, it is headed "Authorization of Extension Street Mains". It shows the requisition number, the authorization number; the date of the requisition number, the date of
727 the requisition; the date of the authorization; the size of the pipe; gives the name of the street on which the main is to be laid, giving the starting point and the point to which the main is to be laid, and the length in feet.

Q. Examine Defendant's Exhibit 3 and state upon whom that requisition is made?

A. This is not a requisition.

Q. Where is the requisition—is that No. 565?

A. The requisition number is 565. I expect the original of that requisition number is in Philadelphia, and a copy is in the office of the Des Moines Gas Company.

Q. Well, the record from which you have been reading is the authorization that was issued on requisition No. 565, under date of November 19, 1910; that is correct, is it not?

A. Yes, sir.

Mr. BRENNAN: The defendant as a part of the cross examination of the witness now offers and reads in evidence Exhibit No. 3 as follows:

Des Moines Gas Company. Street Main Construction Order.
Requisition No. 565. Date 11-19-'10.
Authorization No. 520. Date 12-5-1910.
Main to be laid as follows: Size, 4 inch, on Eighth Street (H. P. North of Douglas) 275 feet, north of Seneca, length 435; Seneca from Eighth Street to Seventh, length 345; on Seventh Street from Seneca to 500 feet north of Seneca, length 500 feet.

Now, immediately below is a sketch showing the location of the main and the dimensions and the street or streets in which the mains were laid.

The dotted line shows the main to be laid. The word Seneca the sketch refers to, shows Seneca or Lincoln street, and running
728 at right angles to Eighth and Ninth streets. Sketch No. 1 being shown on the exhibit, between Eighth and Ninth street. Sketch No. 2 between Seventh and Eighth. And Sketch No. 3 east of Seventh Street.

"Commenced 11-22-1910. Finished 11-26-1910.

HENRY MOUL, *Foreman.*

Pipe used 166 L of 4 inch (L. indicates Length).

Total length run, size 4 inch; total length run size 1,281 feet; cement 350 pounds; yarn, 30 pounds; coal oil, 5 gallons; nature of ground, clay.

On the reverse side of the Exhibit is the sketch of the completed work showing the location of Seneca Street and the other streets running at right angles thereto. Made by Henry Moul.

The following specials are shown on the reverse side of said exhibit: Two covers, 4 inches; four plugs, 4 inches; a cap, 4 inches. Foreman on job, E. W. Wilson. Moved from Thirty-sixth and Woodland. Entered in sketch book 12-13-1910. Book No. 7 page 59. By N. C. J.

Judge CARR: Before we leave this. I wish we might have this kind of an agreement: I would like to have the record to show by agreement that a copy of Exhibit No. 3 can be made on the blank furnished, and the copy thus made together with the matter that has been referred to shall stand in lieu of the original exhibit, and that the original exhibit may be withdrawn and retained by the Company as a part of the record of the Company.

Mr. BRENNAN: It is so agreed to by all the defendants.

Mr. BRENNAN: The defendant offers and reads in evidence defendant's Exhibit No. 4 as follows:

Des Moines Gas Company Authorization of Extension
729 Street Mains. Requisition No. 565; date 11-1910.
Authorization No. 520. Size of pipe, 4 inch. 13-5-10.

Mr. Jansen Haines, Manager.

DEAR SIR: Your requisition of the above number has been received and the expenditure you recommend is approved. You are hereby authorized to proceed with the work as follows:

Mr. BRENNAN: The first column here is name of street, and then there is another, side of street, and then is the word "from" and then "to" and then the length *of the* feet. Under the column "name of street" is 8 H. P., end of main North of Douglas 275 feet; north of Seneca 435. Under the column name of "streets" Seneca. Under the column "from" 8th to Douglas. Under the column "to" 7; under "length in feet" 345. Under the column "name of street" 7;

under the column "from" Seneca. Under "to" 500 feet north; in the column "length in feet" 500; total length in feet 1280.

Specials order, blank. Pipe order, blank. Lead order, blanks. Yarn order, blank. Tools order, blank. Amounts authorized—extension—property 627.20, service and meters, $299. Proper to be charged to specials account, extension, extension mains authorized, 4 inch.

Special account to be classed in the extension mains account. Service and meters to be charged direct to their respective accounts. Remarks, blank. Compare this authorization with your requisition.

WALTON CLARK,
Second Vice President.
Per THOMAS S. GENAY.

Upon said exhibit are the following stamp marks: Noted December 12, 1910. Received, December 10, 1910. On said appears the letters H. E. G.

It is agreed that the words H. P. referred to in the column "name of street" in Exhibit 4 has reference to Highland Park. It is further agreed that the witness may make a copy of Exhibit 4 and
730 that it be substituted in lieu of Exhibit 4 now read.

Q. Now, Mr. Walter, you said something about lamp records. Do you show in this inventory Exhibit 15, any Boulevard lantern or equipment for street lighting?

A. No, sir.

Q. Just lamp posts?

A. Merely the lamp posts.

Q. From what sources did you secure the information as to the lamp posts as shown in the inventory?

A. From Mr. Vincent, engineer of the Des Moines Gas Company.

Q. You made no further inquiry except to take the information he furnished?

A. No, sir.

Q. Personally, I take it, you know nothing of the arrangement under which the street lights are furnished or by whom, or the nature of the contract under which they are furnished?

A. No, sir.

Q. You know nothing about those things?

A. No, sir.

Redirect examination by Mr. READ:

Q. Turn to Exhibit 4 Mr. Walter; what is the name signed to the authorization?

A. Walton Clark, Second Vice President.

Q. Mr. Clarke is the second vice president of what company?

A. Of the Des Moines Gas Company.

Q. Exhibit 3, the original sketch of the main extension, that is a typical sketch, is it?

731 A. Yes, sir.

Q. Such sketches as that are entered into the sketch book you just referred to?

A. Yes, sir; in those sketch books.

Q. Exhibit 4 is a typical authorization?

A. Yes, sir.

Recross-examination by Mr. BRENNAN:

Q. Have you identified the sketch that was used in connection with Exhibits 3 and 4?

A. That is sketch book No. 7, page 59.

Q. I show you a sketch appearing in the book which you have just identified and which has been marked by the reporter as Defendant's Exhibit No. 5; I wish you would tell the court just what that sketch is and what it purports to be?

A. This sketch is copied from the original sketch on Exhibit No. 3, showing in detail the mains laid on authorization No. 520.

Q. And showing the street or streets in which the mains were laid?

A. Yes, sir.

Mr. BRENNAN: The defendant as a part of the cross examination now offers in evidence Defendant's Exhibit No. 5.

Mr. READ: May it be agreed that a copy made by Mr. Walter shall be substituted?

Mr. BRENNAN: Yes, sir.

Q. You say Walton Clark is the second vice president of the Des Moines Gas Company?

A. So I understand.

Q. What relation does he sustain to the United Gas Improvement Company?

A. I don't know that.

732 Q. Is he an officer of the United Gas & Improvement Company?

A. Yes.

Q. Do you know what office he holds in that corporation?

A. I think he is Third Vice President.

Q. His home is in Philadelphia?

A. Yes, sir.

Q. He has no office in Des Moines so far as you know?

A. So far as I know, no sir.

Re-redirect examination by Mr. READ:

Q. Do you know whether the remaining data not sketched into the sketch book is entered on other records of the Des Moines Gas Company?

A. The number of feet of pipe used, specials used, the amount of cement, yarn, coal oil, is entered into the store room records of the Company.

Q. You did not consult such records?

A. No, sir.

Re-recross-examination by Mr. BRENNAN:

Q. Do the records in the office of the Des Moines Gas Company which you investigated in connection with the inventory, Exhibit 15, show the same general plan of making extensions; that is to say, first the requisition and then the authorization and then the sketch and record with respect to extensions, the same as they are shown by Exhibits 3, 4 and 5, from 1887 down to the 1st of January, 1910?

A. In later years they do; around in 1887 and for a few
733 years in there, I don't think the records are quite as complete.

Q. From 1887 up to about what time?

A. I don't know just exactly; I should say four or five years.

Q. In those years, from 1887, it shows the same general plan with reference to extensions?

A. Yes, sir.

Q. And the manner of keeping the records with reference thereto?

A. Yes, sir.

Q. And the manner of the requisition and the authorization and the laying of the mains in pursuance of the authorization.

A. I am not positive as to that, back in the earlier days or time.

The MASTER: If I understood you right you said you obtained the mains for 1886 by deducting those laid since?

A. Yes, sir,.

Excused.

E. L. HEYSER, being first duly sworn on part of complainant, examined by W. L. Read, Esq., testified as follows:

Q. Where do you live?

A. In Philadelphia.

Q. What is your occupation?

A. I am a mechanical engineer.

Q. In the employ of what concern?

A. United Gas Improvement Company.

734 Q. What is your age, Mr. Heyser?

A. Thirty-three.

Q. How long have you been employed by the United Gas Improvement Company?

A. Two years.

Q. In what particular capacity in that length of time?

A. Making replacement valuations.

Q. Did you assist in making an inventory of the property of the Des Moines Gas Company?

A. Yes, sir.

Q. You acted as assistant to whom?

A. Mr. Brodnax.

Q. Were you the chief assistant?

A. Yes, sir.

Q. Did you act during the entire period covered in taking the data obtained at Des Moines?

A. Yes, sir.

Q. What previous experience in such work had you had before coming to Des Moines?

A. I was with the American Bridge Company.

Q. How long?

A. Two years.

Q. In what capacity there?

A. In the engineering department, drawing room.

Q. What experience did you have in this particular line of work you were engaged in at Des Moines prior to coming to Des Moines?

A. I assisted in making inventories of different plants.

Q. What did you do in the way of assisting in making the inventory of the Des Moines plant?

A. Making of drawings, tracings and checking.

735 Q. There were others also engaged in that work, were there not?

A. Yes, sir.

Q. Now, I wish you would tell the Master what measurements you made personally?

A. The particular buildings I worked on?

Q. Yes, and what data you obtained personally.

A. I worked on the No. 3 building, making a field sketch, finished drawing and tracing, taking measurements on this building; also on No. 7 building and No. 12, and assisted in a general way in checking over the rest of the work.

Q. What general plan was pursued in taking and making measurements?

A. Two men worked on a building; one taking the north and east side of the building, and the second man taking the south and west side of the building.

Q. What was the object and purpose of that method?

A. To facilitate time and to be more sure of accuracy.

Q. How would that tend to secure accuracy?

A. The men would work separately as far as making their field sketch and drawing and tracing; when they came to making measurements they would work together, one man holding the end of the tape and the other man reading the tape; the man holding the end of the tape would take the measurements down. When they went to the other side of the building, they would exchange places and in finishing the drawing, after their drawing was completed and figured, the dimensions of it didn't agree, they would go back and check over to see where the discrepancy was and make the corrections.

Q. What was the plan or method in respect to the contents of the apparatus, machinery, etc.

A. The same methods was used.

736 Q. Two men?

A. Two men would collect the data, one making the foundation plans and the other taking a list of the contents, and they would follow the same method taking the measurements.

Q. In a general way, what data was obtained at Des Moines?

A. Simply the drawings and tracing of the apparatus.

Q. The measurements were all taken at Des Moines?
A. Yes, of course, the drawings would not be complete without the measurements.
Q. Mr. Heyser, will you refer to Exhibit 16 and first to building No. 3——
The MASTER: No. 3 is the meter governor, exhauster and wash room?
A. Yes, sir.
The MASTER: No. 7 is the generator house?
A. Yes, sir.
The MASTER: No. 12 is the pump house?
A. Yes, sir.

Mr. BYERS: I was going to say, for the purpose of shortening this examination and saving as much time as possible, if this is the witness who prepared these drawings and made the measurements that are shown on the drawings, we will make no objection whatever to the drawings themselves and the sketches as to the character of the building-, the size of the building-, the location of them, the number of them, and the size and character of the apparatus on the inside.
Mr READ: That is to say, you will not question the accuracy of the measurements.
The MASTER: As shown on Exhibit 16?
Mr. BYERS: Yes, there are a few things we want to question but it don't involve the character of the apparatus nor the size.
737
Judge CARR: I would like to inquire of Gen. Byers—he started his admission by saying that if; I don't know whether he said if this is the witness——
Mr. READ: I will ask him a question.

Q. Are you the person who made these measurements?
A. I made some of them.

Mr. BYERS: So far as these sketches and drawings in Exhibit 16 are concerned, as I stated a moment ago, we do not intend to spend any time in questioning the accuracy of the measurements, that is the length, breadth, thickness, nor the number of buildings, nor the character, nor the location, nor the contents. There is one or two matters that we have objection to but that is not involved in the examination of this witness.
Judge CARR: You say as to the number or size and everything that pertains to measurements.
Mr. BYERS: We make no objection to that.
Judge CARR: How about the material in the building?
Mr. BYERS: As shown in the sketches, so far as we know, we have no objection to that. If something develops later on we will call your attention to it.
Judge CARR: Gen. Byers says there are only a few instances in which they expect to question our showing. It seems to me under all the circumstances here it would be no more than fair for the other side to furnish us the information.

Mr. BYERS: It is not involved in this witness' testimony
738 at all. It is a matter which Mr. Brodnax testified to and we will take it up in further cross examination.

The MASTER: That saves the making of preliminary proof with reference to these exhibits and these buildings by this witness, and by other witnesses, as I understand it, also.

Mr. BYERS: Yes. Of course it is understood that this admission does not cover anything that is involved as to the value of the buildings.

Mr. READ: We have mentioned one as Exhibit No. 15. Exhibits 15 and 16 are complementary. I take it the concession of counsel applies to both exhibits.

Mr. BYERS: I didn't know that this witness was being examined on any other one. I have no objection to making the same concession as to 15. The thing I had in mind was that we may want to examine Mr. Brodnax later on on something that is in Exhibit 15.

Cross-examination by Mr. BYERS:

Q. You stated to Judge Read you were at present in the employ of the United Gas Improvement Company?

A. Yes, sir.

Q. You have — in their employment for two years?

A. Yes, sir.

Q. And on the road most of the time?

A. About half the time.

Q. And does the company have such employment as you performed at Philadelphia, does the company operate a gas plant in Philadelphia?

A. Yes, sir.

739 Q. And has your employment been there in connection with the Philadelphia plant?

A. No, sir.

Q. You never had any employment at all in connection with the Philadelphia plant?

A. No, sir.

Q. Your employment has involved altogether outside plants and outside work and away from Philadelphia?

A. Yes, sir.

Q. You say you assisted in some other inventories of gas company properties?

A. Yes.

Q. Where were they located?

A. At Syracuse, Allentown, Pa., and Reading.

Q. Syracuse, New York?

A. Yes, sir.

Q. Was that property owned by the United Gas Improvement Company?

A. Not to my knowledge.

Q. Did you do that work for them?

A. Yes, sir.

Q. You were under their employment at that time?

A. Yes, sir.
Q. At Reading, was that a United Gas Improvement concern?
A. Not to my knowledge.
Q. Where was the other place?
A. Allentown.
Q. What connection if any did the United Gas Improvement Company have with that plant?
A. I don't know.
Q. Did they have a plant there?
740 A. I don't know.
Q. You are not advised as to that?
A. No.
Q. You are a mechanical engineer?
A. Yes, sir.
Q. How long have you been in the business?
A. Twelve years.
Q. In gas work?
A. No, sir.
Q. Not in gas work?
A. No.
Q. Your employment along gas lines, has that only been recent?
A. The last two years.
Q. Where were you when you were directed to come to Des Moines?
A. In Philadelphia.
Q. To make the inventory?
A. In Philadelphia.
Q. From whom did you receive your instructions?
A. The engineer in charge of the work.
Q. What work?
A. Making inventories.
Q. Who is that man, what was his name?
A. Mr. Crissman.
Q. Does he have his office at Philadelphia?
A. Yes, sir.
Q. In connection with the United Gas Improvement Company?
A. Yes, sir.
Q. Had you ever been in Des Moines before?
A. No, sir.
Q. That was your first visit?
A. Yes, sir.
741 Q. About what time did you come here, what was the date of your arrival in Des Moines?
A. November 7th.
Q. And how long were you here?
A. Until December 23.
Q. How large a staff or what number of engineers and other assistants does Mr. Crissman have in his department?

Objected to on part of complainant as immaterial and not proper cross examination.

A. He had six at the time.
Q. Six mechanical engineers?
A. Not all mechanical engineers.
Q. You mean he had six here?
A. Yes, sir.
Q. I mean how large a staff does he have right along under him?
A. It varies.
Q. Well, give us the varying nnmbers, from what number to what number?

Same objection as last above.

A. From six to ten.
Q. Is the business of making inventories of gas properties throughout the country the special business of Mr. Crissman?

Same objection as last above made.

A. Yes, sir.
Q. How long do you know he has been engaged in that work?

Same objection as last above made.

A. To my knowledge, two years.
Q. You are a member of his staff for that purpose?
A. Yes, sir.

Excused.
Attendance: E. L. Heyser, two days.

742 Judge CARR: We have introduced in chief our preliminary evidence, but I understand from Gen. Byers that he wants to further cross examine Mr. Brodnax. Manifestly we are not ready to offer these exhibits until we get through the preliminary evidence. There may be something develop on the cross examination that would require something further.

Mr. BYERS: It would not affect the competency. The thing I have in mind would only go to the accuracy of one of the matters involved.

Judge CARR: That might be one of the matters we might want to go into.

The MASTER: You would have a right to go into it afterwards.

Judge CARR: We would prefer to have our preliminary evidence all in before offering these exhibits. The cross examination may develop something we may want to take up further.

The MASTER: Do you want to examine Mr. Brodnax now?

Mr. BYERS: If he wants to go away, we will be perfectly willing to waive the cross examination; we can cover it by our own testimony.

Judge CARR: The complainant now offers in evidence Exhibits 15 and 16, and in connection with the offer of Exhibits 15 and 16, which offer includes the sketches and photographs and maps appearing in the said bound volume Exhibit 16, complainant further offers in evidence the map Exhibit 17, and the map Exhibit 18, and the map Exhibit 19; the offer includes the contents of each and all of these exhibits. The complainant further offers in evidence the map

Exhibit 5, and complainant now offers in evidence the map Exhibit 6.

743 Mr. READ: In connection with Exhibit 5, there appear some yellow pencil marks and various figures showing elevations above city datum at the several points; that has not been explained yet, and the engineer who made the survey is not in the court room, which will occasion some delay.

Mr. BYERS: Is that what those figures show?

Mr. READ: That is what those figures show.

Mr. BYERS: Very well.

HENRY LEA, being first duly sworn on part of complainant, examined in chief by N. T. Guernsey, Esq., testified as follows:

Q. Please give the reporter your name, age and residence?

A. Henry T. Lea; age thirty-three; residence, Chicago.

Q. What is your profession?

A. Consulting gas engineer.

Q. I wish you would state somewhat in detail, your experience in the operation, construction, and planning of gas plants, manufacturing gas and manufacture of gas making machinery.

A. Do you want me to give the dates as I go along?

Q. Whichever way you prefer; I don't think we care.

A. In 1896 I entered the gas business at Madison, Wis. My work there the first year was not very specific in character. I was located at the works of the gas company, but had no title. The second year I was works foreman. The third year I was works superintendent. During my third year I left Madison to go to Peoria, Illinois,

744 as assistant in charge of the construction of a new gas plant there. Through an unforeseen circumstance I was placed in charge of the construction of that plant, before we had actually begun the work, and remained in Peoria in charge of construction of the new gas works until it was completed and gas was being made. This plant had a capacity of about 650,000 cubic feet per day and was of the coal gas type. As soon as this plant was in condition to operate, was actually making gas I went to Fondulac, Wis., for interests who were rather indirectly connected with the people I was working for in Peoria. At Fondulac I was manager, and because the plant there was in very bad condition physically, about the first thing I had to do at Fondulac was to begin planning extensions and improvements needed. I was there only a few months, because the people who sent me there sold the property, within, I think, four months after I got there. The people I referred to are the Dawes Gas Syndicate; that is not the corporate title, but it represents the group of men.

Q. It is the popular title?

A. Yes. When they sold the Fondulac plant they sent me to Ottumwa, Iowa, to take charge of the reconstruction of a portion of the plant and all extensions, street mains, and services in Ottumwa. I was there, I don't remember the year or number of months, I can get them if you wish. The Dawes people also sent me to Keokuk, Iowa, to make some alterations in a plant there;

that was relatively a short job, and I went back from Keokuk to Ottumwa to complete my work there, and was then transferred again by the Dawes people to Evanston, which was the largest gas plant the Dawes people had at that time.

Q. Evanston, Illinois?

A. Evanston, Illinois. The plant in Evanston supplied
745 Evanston and three other Chicago suburbs on the north shore. In Evanston I was first the superintendent of the distribution, and second I was general superintendent, and the third year I was general manager. This plant was sold by the Dawes people about the end of my third year in Evanston, and about two months after that I was transferred by the interests connected with the new ownership to the Division Street Station of the Peoples Gas Light and Coke Company in Chicago. This Division Street Station was a water gas plant and at that time was the largest in Chicago. The daily send-out was approximately ten million cubic feet. The spring following my going to Division Street Station I left Chicago to go to Ft. Wayne, Ind., as first assistant to the president and chief engineer of the Western Gas Construction Company. At that time the Western Gas Construction Company had the largest shops devoted exclusively to the construction of gas works equipment, and the company was engaged solely in the manufacture and erection of gas works equipment for coal gas plants, water gas plants, crude oil gas plants and coke oven plants. I remained in Ft. Wayne about a year and a half, when I went to Pittsburg for Mr. George Westinghouse, to take charge of experimental development of gas making equipment used in the generation of power principally. The type of plant I am referring to here is called producer gas plant. While in Pittsburg I was in complete charge of the design, construction and experimental operation and erection in the field of all gas producers up to the time of my leaving Pittsburg. During this period I developed from the original idea to the finished plant each of the three types of gas producers now being sold by the Westinghouse Machine Company of Pittsburg, and before I left Pittsburg, there were in operation in various
746 parts of the country either nine or ten plants getting their power from the gas producers of my design. I left Pittsburg in the spring of 1907 to open my own office in Chicago as consulting gas engineer and have since been so engaged.

Q. Are you a member of any learned or technical societies?

A. I am a member of several technical societies, more or less learned.

Q. What are some of them?

A. American Gas Institute, American Society of Mechanical Engineers and four or five smaller Gas Associations.

Q. Now, you spoke of the capacity of this Evanston plant where, I think, you were some three years in various capacities; what was the capacity of the plant?

A. The capacity of the Evanston plant was approximately five hundred to six hundred thousand feet per day, maximum.

Q. About what population did you supply?

A. About forty thousand; that is the total population of the districts which we reached, but we did not reach all of each of the districts.

Q. What was the output of this Division Street Station in Chicago?

A. About ten million cubic feet per day.

Q. About twenty times that of the Evanston plant?

A. Yes, sir.

Q. And do you know what population you supplied with that?

A. I presume in the neighborhood—no, I can't tell you the population supplied with that, except this, the Division Street plant did at that time supply a large portion of the entire west side of the city of Chicago.

Q. Now, you said at Ft. Wayne you were engaged with a concern there manufacturing and erecting gas works equipment; what do you mean by gas works equipment?

747 A. All of the machinery used in gas plants with the exception of small engines, such as we use for driving exhausters and blowers. These shops in Ft. Wayne comprised pattern shop, foundry, machine shop, boiler shop and forge shop in addition, of course, to the offices and drafting room, and employed about 450 men at the shops and had at that time about 120 men scattered all over the country erecting plants.

Q. Now, then what did you do there?

A. I was first assistant to the president, who was also chief engineer. When the president was in Ft. Wayne, I would go out after contracts; when I would come back, the president would go out after contracts and I would remain in Ft. Wayne in charge of the shops. The president was out a great deal more than I was.

Q. When you went out after contracts, where did you go?

A. All over the United States, and some in Canada.

Q. Was there any competition in connection with the contracts?

A. Yes, sir.

Q. When you went out after contracts, what did you have to do with reference to fixing the prices of your business?

A. I was in control of fixing the prices of such contracts as I went after.

Q. Now, I want to go back to Madison for a moment. What did you do in that Madison plant?

A. My first year—well the very first thing I did there was to begin keeping records of the readings of the station meter and the sales of coke, and later on I kept time—I don't remember the exact growth of the work—but one thing after another was given to me to do until the second year, when as works foreman I had the hiring of men discharge of the men employed in the gas works; the control of the operating conditions of the plant itself.

748 Q. So that prior to the establishment of your office as consulting gas engineer, your experience included the actual work of manufacturing and distributing gas, and also the work

that was incident to designing and manufacturing and selling appliances used in the manufacture of gas?

A. Yes, sir; I can say I have done each of the things any of the men around a gas plant have to do.

Q. That is, you mean operate each machine and perform each kind of labor?

A. Yes, sir.

Q. Now, after you established this office in Chicago I suppose you did some work also as a consulting gas engineer?

A. Yes, sir.

Q. Tell us something about the character and extent of that work and the territory covered by you?

A. The territory of the work varied. I have been called on to make examinations of plants for bond houses undertaking underwriting of securities, by individuals or companies, or cities contemplating building new plants, wanting to know whether it would be advisable to go ahead; by companies having difficulties in the operation of their plant. I also designed new plants and determined whether the conditions in operating or distribution expenses could be affected; figured on the improvement of existing plants. I think that covers it in a general way.

Q. I wish you would tell the Master whether your employment has been solely by the owners of plants or partly by owners of plants and partly by municipalities?

A. My work has come from individuals who owned no plants, from cities which didn't own gas works in their own communities,
749 from individuals and companies owning the properties which I have examined, and for individuals or companies interested in the purchase of, but not owning the properties examined.

Q. Now will you give us some—I don't care for all—some cities by which you have been employed comparatively recently?

A. Beatrice, Neb., and Buffalo, New York.

Q. Have you recently done any work similar to the work that has been done here in connection with the valuation of the gas plant in Chicago.

A. I have made a complete appraisal of the gas plant in Chicago within the last year and a half.

Q. I wish you would explain by whom you were first employed to do that?

A. I was first employed by the interests antagonistic to the Gas Company.

Q. And did you complete the valuation for them?

A. No.

Q. That was abandoned for some reasons?

A. That was abandoned because of debts in the organization which changed the policy of the concern.

Q. Were you afterwards employed to complete the valuation? If so, by whom?

A. By the Gas Company.

Q. And you did complete it then?

A. I completed it on exactly the same basis as it started; it was about half done when it first stopped.

Q. Now, Mr. Lea, have you made an examination of this plant in Des Moines for the purpose of putting a value on this plant here?

A. Yes, sir.

Q. I wish you would tell the Master when you first came
750 here for the purpose of looking at the plant and in a general way the character of your examination of it and the time that you have devoted to the actual plant itself and the conditions here in Des Moines affecting the valuation of the plant?

A. January 13th, I think, was the day I reached here for this examination.

Q. In what year?

A. This year. On January 13th, and I went, after having seen Mr. Haines at the office of the Company, I went immediately to the works and made a general examination of the plant without the aid of any detailed inventory.

Q. Tell what you mean by a general examination of the plant.

A. Walking through each of the buildings, examining the equipment to get the lay of the land—I hadn't been in Des Moines for several years, and had forgotten the exact lay of the plant and a good many extensions have been made since I was here. I went through to get a general impression of the arrangement of the plant and the equipment and its placings; and shortly thereafter I was supplied with an inventory of the equipment, covering not only the plant, but the distribution system as well, and then went back to the plant and with this inventory made a very careful examination of the plant.

Q. Was that what purported to be a copy or reproduction of the inventories that have been offered here?

A. Yes, sir. I took this inventory and went over the plant with the view of determining whether all the items of importance, such as buildings and machinery were there, and later I went again over to the plant to determine by inspection the then condition of each of those items in the inventory. The inventory also covered the distribution system. I did not check the distribution data with
751 the same detail: that is impossible; but I did go all over, at least I went all around the city of Des Moines, back and forth in the several directions many times, to observe whether there were evidences of the use of gas at the outermost points indicated by the maps, and satisfied myself that the maps showing the street main system were substantially correct, just as I had satisfied myself previous that the inventory of the building, equipment of the buildings and machinery was substantially correct. At the plant I went further. I even checked a good many of the measurements. The only errors I found—I won't say they were errors—the only differences I found were so small I wouldn't measure them over again to get my own measurements of it much more correct. If I would take a tape line and the map showed a building 109, and I would run down the building and show it 108, I would say the other fellows were probably more careful than I was and would say it was substantially correct, and couldn't go beyond that.

Q. You spoke of the evidences of the use of gas you could observe around the outskirts, extremities of the distribution system; tell what such evidences are, we are not familiar with the gas business and you are.

A. Gas street lamps and lamp posts, and the pumping points for drip pots, gas burners in stores or residences.

Q. Now, before taking up the detail of this matter of the valuation, the gas that is manufactured here is called what?

A. Water gas.

Q. Now, I wish you would describe in a general way the method of manufacturing water gas as it is manufactured by the plant of the complainant company?

A. The basis of the water gas process, you might say, is a
752 fuel bed made up of coke or anthracite coal. If the fuel bed under a boiler, for instance, is shallow, if you pass air through that boiler fire, the air will attack the carbon in the coal and burn it to carbonic acid gas. The hydrogen in the coal will be burned on combination with the oxygen to water vapor. That is about all you need to consider of a boiler fire, because the depth is not great. But if you were to increase the depth of that same boiler fire to five or six feet, and then pass air through that fuel bed, the oxygen would attack the carbon forming C O-2 or carbonic acid gas. That carbonic acid gas passing up through the remainder of the fuel bed will be reduced; that is, one atom *atom* of oxygen in the C O-2 will combine with another atom of carbon and you have as a result two volumes of carbon monoxide. The principle then is, carbonic acid gas is a product of complete combustion. You cannot burn it any more; it is diluent or inert gas. It is heavier than air. We don't want it in the gas we sell, because we can't use it. The other gas carbon monoxide is combustible, but it is not good for illuminating; it burns with a blue flame. Now, if you imagine this boiler of fire deepened and instead of having a rectangular fire box, put it in a cylindrical fire box, you have a water gas generator in effect. The water gas generator is a cylindrical steel shell having a lining of fire brick. The thickness of the lining of course will vary with the size of the machine. On a ten foot diameter machine, the lining would be about fifteen inches thick. There is a grate or bars near the bottom of this shell and there is a hole at the top of the shell for the admission of coal or coke to be used. There are also bars for the cleaning of the fire. There is a gas outlet near the top of the shell, which communicates with the top of this second steel shell,
753 and about the same size as the generator. This second shell is called the carburetor. It contains a large number of fire brick built up checker fashion, placed on top of each other, so that they are zig-zag and there are flues all through the brick work. The bottom of the second shell communicates with the bottom of the third shell, which is called the super-heater. From the outlet at the top of the third shell the gas is led into what we call a washer or seal pot, which is another cylindrical steel shell with a flat top and bottom, containing water. When the machine is in operation the water is always entering this seal pot, but there is always a fixed overflow be-

neath the surface of the water in this seal pot, dips the pipe coming from the top of the super-heater. The purpose of that seal pot is to provide a kind of a valve, so that the gas may come from the super heater and pass through this water seal without much resistance, and go on to the balance of the cleaning and purifying equipment, but cannot go back without much higher pressure than will force it forward. This is due to the fact that the area of the inlet pipe is much less than the area of the seal pot itself, and since the inlet pipe dips below the surface of the water, any gas which leaves that pipe must on entering the seal pot depress the water within the pipe to the bottom of the pipe. But the amount of water displaced is of course only that which was within the pipe. To force the gas back however from the seal pot into the pipe a much larger volume of water must be displaced, since the surface of all of the water in the seal pot must be depressed below the end of the inlet pipe. The amount of water displaced in this case, when forced up into the pipe, will of course make a much greater head than was encountered by the gas entering the seal pipe, and the pressure required to force the gas back into
754 the pipe is therefore correspondingly greater than the pressure required to force the gas into the seal pot. Now, beyond this seal pot come the condensers, scrubbers, exhausters, storage holders and purifiers and meters, which we will come to later. To make water gas, having your fuel bed in the generator built up, you turn a blast of air beneath the grate of this fuel bed. This air comes from a fan or blower operated by a vertical steam engine, steam turbine or any other source of power adapted to the work, and for a few minutes, assuming you have been in operation for some time, after a few minutes blowing you have developed a temperature in the fuel bed to the required point. During this period the hot gases from the generator have been passing over and around the checker brick in the carbureter and in the super-heater, thus also increasing their temperature. While you are doing this you are blowing the products of combustion out of the top of the super-heater through what we call the purge stack. All of this time you are blowing you are making in the generator this carbon monoxide, the gas which burns with a blue flame, combustible gas. The process of making that gas itself throws out heat. Consequently the temperature of the fuel bed keeps rising. But the gas you make you lead forward to those second and third shells. By admitting more air you complete the combustion in those shells. You admit more air at the top of the carbureter and at the bottom of the super-heater. As a result the gasses leaving the top of the super-heater are the products of complete combustion and there is nothing in them we want except the sensible heat of the gas. Having obtained the required temperature of the fuel bed and carbureter brick and super heater brick, you shut the valve in
755 the top of the super-heater and shut off your air and admit steam below the grate. Now the steam or water vapor, composed of hydrogen and oxygen, passing up through that fire, is decomposed. It is split up into hydrogen and oxygen. The hydrogen goes on through the fuel bed, we suppose, unaffected. The oxygen acts just as oxygen from the air in attacking the carbon in the fuel

bed and at the bottom of the fire makes carbonic acid gas. That gas passing through the upper part of the incandescent fuel bed is again reduced to carbon monoxide. At the top of the fuel bed we find our carbon monoxide and hydrogen in practically equal volumes with a small volume of carbonic acid gas and of nitrogen and in some cases of sulphur compounds. These are things we do not want in there; but they represent a small percentage of the total volume of gas. Some of them are later removed. These gases, carbon monoxide and hydrogen have a relatively low heat value. The gas being distributed around the city here has a heat value of about 650 units per cubic foot of gas. The gas that we got at the top of the generator has only about 320 heat units and it has no illuminating value. To make it a commercial gas we have got to increase the illuminating power of it and heat value of it. So at the top of the carbureter we admit crude oil or petroleum or some distillate of petroleum; crude oil is generally used. That comes in usually under pump pressure or pressure from some other source, comes through a spray which atomizes the oil in a finely divided state, just like mist. The hot gases coming into the carbureter striking this oil evaporizes it mechanically and then mixing with the oil vapors travels around those checker brick. As far as we know there is no specific and dependable chemical reaction goes on. It is simply mechanical as far as we know.

756 They mix mechanically with the fixed gas from the oil. The oil gases passing through this originally high temperature are brought themselves to a temperature which makes them permanent gases, after having gone through the vapor state. They come in as a liquid and then vaporize and then the vapors are made in to permanent gas by the heat.

The MASTER: What kind of gas?

A. Hydro carbon; all have more or less illuminating value. They are very rich. If you were to take those gases alone, the flame would be smoky, not adapted to distribution generally. They have to be diluted. They are all perfectly good for certain specific purposes, but neither alone is adapted to general distribution for the supply of the city. These rich gases when they are permanently fixed by the heat, have been so thoroughly mixed that they maintain that relationship throughout the distribution system, and the result is a mixture of gases which has a high illuminating value and a high heating value. As soon as this gas is made, while it is being made, just after it enters the seal pot, it meets the first step of the purification scheme, that is the seal pot. It is physically impossible to expose every little vescicle of oil to the temperature, and the time required to fix it into permanent gas, consequently some of the oils go through as vapors. It is also practically impossible to expose every vescicle of oil to just that temperature which will make it into permanent gas without going too far. If you go too far you split it into hydrigen and carbon and the carbon will deposit in the form of lamp black. There isn't much difficulty getting the tar out of the gas and most of it comes out in the seal pot or washer. We have got to get rid of the water vapors, so we just pass the gas

757 through the second shell called the scrubber, another steel cylindrical shell six or eight feet in diameter, 18 or 20 feet

high. It is filled with, sometimes wooden trays and sometimes stone and sometimes coke; any material which will afford a relatively large surface for the retention of water. Water is admitted at the top of the scrubber and trickles over the surface coming down and getting gradually hotter and in that shell or scrubber the major portion of the remaining water evaporates or condenses, but even at the top of that shelf there is still a temperature whic- carries considerable water vapors and the gas itself is then taken into the condensers, another steel shell built a good deal like a boiler put on end. If you imagine the water surrounding the tubes and the gas passing through the tubes you will see what the condenser is. From that condenser the gas goes to the relief holder, called relief holder only because it serves to relieve the generator. You are making gas for only a few minutes at a time, say from three to seven to nine minutes. Then you stop making commercial gas and again begin blasting to bring your temperature back. So to keep the fire in workable condition, you have got to stop every few minutes and blow it up again. That means you alternate all day long. You are blowing for a few minutes and then making gas for a few minutes; and then you blow again, and so on. You are actually making gas at a rate very much faster than the average rate of production throughout the day. A machine having a capacity of a hundred thousand cubic feet per day is actually making its commercial gas at a much higher rate than the average for the day. To provide against the necessity of having a plant beyond the water gas set big enough to take care of this maximum rate of production, the holder is put in. If
758 you do not put in a relief holder, you can not have all the balance of the plant big enough to take care of the gas made at the maximum rate of the generator, you would have to have which would be very expensive. To provide against that, the relief holder is installed. As the gas comes into this relief holder and it comes up and then the generator goes to blasting again and the holder begins to drop. The output of this holder goes to the exhauster, which draws the gas out at a uniform rate from the relief holder and passes it through the purifiers, station meter, and out to the storage holder. Now, this relief holder has only that function, except it does tend to cool the gas and condense some of the vapors. Now then, the exhauster draws the gas from this relief holder at a uniform rate. If you are making a hundred thousand feet a day, the gas leaving the relief holder comes out at the average rate and the gas coming in sometimes twice or three times as fast as the gas going out. But the exhauster is going all the time; the exhauster pulls the gas from the holder and pushes it ahead through what we call the purifier. The purifiers here are large cast iron boxes, about 20 feet square to 7½ feet deep, four of them. The fourth in the series is always held in readiness for use. The third one in the series is the one that the inlet of which you are testing the quality of gas. The purpose of these boxes is to take out the sulphur compounds from the gases. The sulphur compounds we have to take out are practically restricted to sulphuretted hydrogen—that stuff makes a rotten egg smell. We don't like to have that. It is objectionable, not only because it smells, but because when you burn it

it becomes sulphurous oxide, and this on taking up this on
759 taking up the water vapor becomes sulphuric acid, which would of course ruin all the fixtures and metals with which it might come in contact. Each of these boxes contains trays which carry layers of iron oxide or rust which is mixed with shavings or saw dust and forms what we call iron sulphide. After a while that rust has taken up as much sulphur as it can carry and if you apply the sugar of lead test upon white paper it will show that this is the case. As soon as the second box has fouled the sulphur box we throw the fourth into operation and throw out box number one. Then the iron rust and shavings in number one are thrown out into the air and the oxygen of the air comes along and attacks that and reduces it back to iron oxide or rust sulphur we started with, free sulphur. That free sulphur does not affect the gas and the gas does not affect the sulphur. So we put this oxide back into the box and use it over again. From the purifiers the gas goes to the station meter; all the time the exhauster is pushing the gas ahead, and pushing it through the purifier; then through the station meter, and then the gas goes from the station meter into the storage holder, and from the storage holder, the big holder, the gas goes through the governor, pressure regulator, and then goes into the street mains to supply the city.

The MASTER: What is the specific gravity of the two gases?

A. The specific gravity of the mixture will run from .55 to .65 depending on the amount of oil used.

The MASTER: They are mixed in the same proportion?

A. They are mixed in the proportion necessary to give you the candle power or heat value you maintain.

Q. You speak about specific gravity, .55 or .65; what do you mean by that?

A. Point 65, as compared with air. You call air 1, this
760 gas would be .65 as much weight as air. These percentages of course vary up and down; there is a wide variety of gas there; you can't put any one value without knowing the exact gas.

Q. When you say point 65, you mean decimal point 65?

A. Yes.

Q. You state your amount of oil would vary with your candle power?

A. Yes, sir.

Q. As the candle power increases, how would that effect it?

A. All illuminating value comes from the oil; the higher the candle power the larger the amount of oil required.

Q. Have you at the request of the complainant made an estimate of the value of the property of the complainant used and useful in its business of manufacturing and distributing gas in the city of Des Moines?

A. Yes, sir.

Q. Now, in making the valuation or appraisement of the property referred to, what method, Mr. Lea, did you adopt?

A. I first satisfied myself as to the substantial accuracy of the inventory and then I set about obtaining the local data as to the costs of labor and all the materials entering into the construction.

Q. That is things that would be furnished locally?

A. Yes, sir; they represent but a small percentage of the total investment, but I got a great deal of information as to local prices before beginning my calculation. The information I obtained locally was not used exactly as received, because all information of that sort has a good deal of variableness in it. Three contractors in one town won't give you the same figures. For instance, as
761 against the figures I obtained locally, I have used for comparison a large number of similar figures in other cities. Then I selected such units throughout as appeared in my judgment would represent and might fairly and reasonably be expected in the city of Des Moines at this time.

Q. Before we go into the details of this, I wish you would explain whether what you have adopted is what is known among the engineers as the reproduction method of valuing such properties as this, and some of the reasons which led to the general adoption of that method, if it has been generally adopted.

A. The reproduction method is not the only one I have considered, but it is the one on which I have placed the greatest reliance. It is also the method which is most generally accepted as the correct basis for valuations, because it is the most comprehensive and the most direct of all of the methods. For instance, one of the things you might consider in the value of the property, is its issue of securities. While the issue of securities may have some bearing on the actual value of the property, but that does not necessarily follow.

Q. I suppose they usually run under, don't they?

A. They are not reliable enough to indicate much. You might take the market value of securities, but that again is not at all a reliable method, because the market value may be fictitiously maintained. The third method you might say is to go back to the records of the company and find what the actual cash investment of the property has been. This is not a fair method, although it is to be considered to some extent. It is not a fair method of arriving at the present value of the property, because obviously the amount paid for anything does not always determine its present value. Real estate will illustrate this most clearly, I should say, but the
762 same thing applies to all the equipment used by the gas company. The reproduction theory is the most reliable of any that I have been able to find, because it contemplates the placing of value upon existing property in its present condition. If property has been badly used, has been neglected and allowed to depreciate faster than it should, the reproduction theory makes proper allowance for this by making a corresponding depreciation in the property. If extraordinary care has been exercised and the property maintained above the average, the reproduction theory gives credit for such improvement or good condition. In other words, whether your value is up or down, for you or against you, the reproduction theory represents it more accurately than any other theory or method I know of.

Q. It is based on the actual facts?

A. It is based on the conditions and facts as they are to-day, not as they might have been or were.

At this time, 12: M., an adjournment was taken until 1:30 P. M.

763 1:30 P. M., FRIDAY, *July* 21, 1911.

HENRY I. LEA, continued on direct examination — N. T. Guernsey, Esq., testified as follows:

Q. Mr. Lea, if you will, please explain a little more fully the theory upon which this reproduction method of valuation of properties of this character of property is based?

A. The reproduction theory is a means—outlines a means of arriving at the present worth of the property. It is in other words a means of finding what a man wanting property of that kind would be willing to pay for it at the time. It covers all of the elements entering into present value, not only the cost of building of equipment of the property now but makes allowance for the depreciated condition of the property in existence.

Q. Have you, Mr. Lea, made an estimate of the value of this plant on this reproduction theory and is Exhibit 20 which has just been marked by the reporter a report showing the final results of that work which you have done?

A. Yes, sir; this is a copy of that report.

Q. You say this is a copy. It is an original isn't it?

A. That is an original of my report.

Q. Now Mr. Lea, taking this exhibit No. 20 and the first page of it is a letter from yourself to the manager of the Gas Company. This first page in the form of a letter to Mr. Haines of June 24, 1911, gives a summary of your conclusion that the aggregate reproduction cost and present value ascertained by you by the methods you have referred to?

A. Yes, sir.

764 Q. And what is the distinction now between reproduction cost and present value or reproduction costs and present values as you use them in this letter?

A. The reproduction cost is the total of all of the elements of cost which enter into the production of any element in the plant, that comprises the labor and all the various materials as they exist today. The reproduction cost covers the building now today of each of the elements in this existing property but each of these elements depreciate or appreciate depending on the element. Real estate for instance bought a great many years ago has appreciated, it is worth a good deal more today that it was when it was purchased, but the buildings, erected some years ago have constantly depreciated and unless there has been a rise in the value of raw materials which will more than offset depreciation due to wear and tear obsolescence or p*g*ysical decay then the net result will be that each of the buildings has today a lower present value than its reproduction cost. You may illustrate the difference very clearly in the cost of an abandoned street main. Suppose the company laid some years ago a piece of ten inch main out in this street and for some reason or other that main has been

abandoned. Now you may by taking the present price of the various elements entering into the cost of laying pipe, you may figure out the reproduction cost of that piece of ten inch pipe but that particular piece, however, is not today in use by the company. It has been abandoned, it has no value whatever to the company. It is not used or useful in manufacturing or supplying the gas to the city and it has depreciated whatever it cost. It has no value in today's figures.

Q. Now following this letter in this report, Exhibit 20, is
765 an index is there not?

A. Yes, sir.

Q. And that index refers to the various exhibits indicated by letters which follow it in which the details of these various items that re-grouped in your letter are taken up?

A. Yes, sir.

Q. Now turn to the first one of those, Exhibit "A", what do you take up there?

A. Organization and legal expense.

Q. I wish you would state what items you consider in getting at that total of this item?

A. If you are going to arrive at the reproduction cost of any property you must obviously begin at the beginning of the reproduction. I might to make myself clear, say that a man comes to Des Moines for the purpose of buying the property of the Des Moines Gas Company and when he finds the price at which it is held he does not buy right away. He stops to find out whether he could build another plant to do the same work, another plant of the same kind and characteristics throughout for less money. In other words he figures what would be the reproduction cost of this property and then he depreciates that reproduction cost in accord with the conditions as he finds them existing in this property. That reproduction cost must cover not only physical equipment of the company, but all the elements of value concerned in the company's property. He must begin then at the beginning and say to himself if I am going to reproduce this property the first thing I have got to have is an organization. I can't get an organization without spending some money. So he sets about first finding men to enter into this
766 organization with him, finding where he can raise the necessary money, figures about how much it requires to do each of these particular things and having made the arrangements for the organization of his company and having made arrangements for the money required he goes ahead with his plans and about the first thing he would do is to bring some gas engineer to Des Moines to look over the situation and to give him a report as to the advisability of the undertaking which he is so anxious to go into or interested in going into. That preliminary investigation and examination of all of the local conditions, calculations as to the probable cost of the plant, probable income, probable earnings, etc., is covered in my item of preliminary investigation under Exhibit "A". I have assumed that $3,000 would be required for such preliminary investigation. If this report has been found to agree with the hopes of the promoters, the company is organized and

it becomes necessary to prepare articles of incorporation, it will be necessary to make and have certified a number of abstracts and there will be drawing and examining of contracts as the work gets further along and a general retaining fee for the counsel of this company which I have put in a lump figure covering each of the items last mentioned the total figure being $10,000 for the period of construction. There will be a state incorporation fee which this company must pay and in Iowa that would be a trifle over $4,000, I have made it $4,000 flat. Having incorporated the company *etc* about the building of its organization and the securing of detailed plans and specifications from which its proposed plant is to be built. These plans and specifications would be prepared by engineers who ordinarily are paid a percentage of the total cost of con-
767 struction of the property. In addition to the engineer's handling the structural engineering end of the work the company would have to have its own local offices to look after a great many of the details involved more or less directly with the engineering even before the plant is ready to make gas and the most important active officer would be the manager. I have allowed his salary in here for three years as a part of the cost of the construction of the plant because he would be necessary during that period in a great many ways. The manager and his assistants would have to do more or less traveling throughout the period of construction of the plant. There would be various incidental expenses of that sort involved and I estimate that for a period of three years these expenses would aggregate about $4,500. During the construction of this plant there would be very large quantities of raw material coming in. There would be a great many accounts and contracts to be kept and records to be made, and a clerical force would be necessary beyond the force of the engineering department and this I have estimated for the three year period as involving an aggregate expenditure of $13,500. Also during this preliminary period, the period of construction of the plant and distribution the company would be obliged to maintain office quarters of some sort and there would be the usual expenses of stationary and office supplies rent, water and light which I estimate for the three year period would aggregate $4,500. The sums I have already given make a total of $62,000. And this total figure is one of the elements which enter into the final reproduction cost of the property as a whole. They enter into the value of the property and in view of the fact that can have but one value for a property, that is, we cannot have
768 one value for taxation and another value for rate making we are compelled to include the organization and legal expense total as one of the items in the reconstruction chart and the total of $62,000 previously given has been so carried in my report and I have found that the taxes during construction on that portion of the investment represented by organization and legal expense would be $1,429. Also that the loss of interest during the construction of that portion of the investment represented by organization and legal expenses would be $4,594.

Q. Now a word of explanation about that loss of interest during

construction? What do you mean by loss of interest during construction?

A. If I have $1,000 with which to build a store and if it takes me one year to complete the building of this store from the time I set this money aside for this purpose until I am operating the store, in other words if a period of one year elapses before I get any return on this money I am losing the income which that money would otherwise have brought me and that loss of interest during the preliminary period, the construction period is of course a part of the total cost of building that store.

Q. So that here you have computed the interest which you would have lost on the amount thus expended in this organization and legal expenses during this period of construction?

A. Yes, sir.

Q. And when for the purpose of this report does the period of construction end, that is when with reference to when the plant begins to operate, I don't mean what year, what time.

A. Well it is assumed in all reproduction cost calculations that you are going to expedite this work of reproduction, going to push everything as fast—going to complete the work as fast as is hu-
769 manly possible. Now the time required for the building of a plant is of course determined by the character and volume of the different elements of the plant. The buildings will require a certain time, the works equipment will require some other time and street mains another time. In other words you cannot build a million foot holder as soon as you can a forty by forty building. Each of these things is considered and in this report will be found a chart showing the rate at which this plant would actually be built if you were to begin today to reproduce it. You would do certain things first and certain things next and so on through. You would begin building your plant on such a date and by such and such time you would have completed such and such portions of the building. You would begin building this holder at such a period and on such a time it will be completed. There is no use to begin building the building of your distribution system as early as you begin the works because you would have your distribution system in readiness for use before you had any gas to put into it. So we don't begin building the distribution system until some time after we begin the works' construction. And each of these items is shown in detail in a series of charts called reproduction expenditures to be found in Exhibit "J" of my report. The period of construction required, as I said depends on the nature of the work and the logical sequence. The first thing you would do——

Q. I don't care to go into that in detail now Mr. Lea, we will reach that later but I would like to follow this in our order here and see whether this loss of interest during the construction was computed up to the time the plant began to operate and furnish gas or up to the time you had reproduced the earning power of the old plant
770 or at what time with reference to the time the plant is ready to operate?

A. Throughout my report I have calculated the loss of interest

during construction and all the other items enter into construction cost clear up to the point at which that particular part of the equipment goes into use, the loss of interest for interest and taxes on a given machine are charged to the construction of the plant until the machine goes into use. But you don't begin the construction of it earlier than necessary. As soon as it can operate you charge the taxes and so forth to operation.

Q. Now one other thing before we go ahead. You said in building a plant you endeavored to construct your hypothetical plant as fast as humanly possible, if I caught your language?

A. Yes, sir.

Q. Is that to any extent limited by the fact that you also desire to secure the minimum cost?

A. That is the principal reason governing this method.

Q. In other words, it is the method of construction that will reproduce the plant at the least expense to the investor.

A. Yes, sir. The man who reproduces this property naturally wants to reproduce it at the lowest cost possible. That means he must reproduce it as quickly as possible.

Q. So in determining these questions you put yourself in the position of a man investigating his own money and trying to do it economically?

A. Who wants to get that money to work.

Q. This gives you an aggregate of $68,023 for this item organization and legal expenses which is shown in your reproduction
771 costs in the letter that opens this report?

A. Yes, sir.

Q. Now the next item in that letter is working capital, and by the index I see that is taken up in detail under Exhibit "B" in this report which is Exhibit No. 20. Now I wish you would explain in the first place what you mean by working capital and the necessity for it and then later where you obtained the information which is contained in Exhibit "B" and the use which you made of it?

A. Working capital is the total of the money tied up in what might be called quick assets necessary in the conduct of the business. For example a company operating a gas plant must at all times carry a stock of raw materials. These represent investment. It must all the time carry a stock of gas consuming appliances like gas ranges and water heaters and stoves. It must always carry a reserve stock of some of the portions of the plant equipment for emergencies, duplicate portions for instance or parts of the plant. It must carry money for the operation of the petty or sundries sales department. It must also have enough money in cash or its equivalent to tide over the period between the production and the actual consumption of gas to the payment by the consumer for that gas. The gas is made and delivered throughout the entire month, but the bill for that gas is not sent out until after the end of the month and the payment is made at a still later period. The money required to pay for all of these items enter- into manufacturing cost must of course be provided in working capital. Then there will be a little in actual cash which the company will have in one form or another and on some few ac-

counts there will be advanced payments necessary from time
772 to time as on insurance. The total of the money tied up in material and supplies and in accounts receivable which cover more than the sales of gas, cover also the sales of appliances, and in cash and in advance accounts I find to be $181,377.29. And the company has some accounts payable and the total of accounts is of course a legitimate deduction from the foregoing total inasmuch as it reduces the net working capital required. I find the accounts payable as of the date of this statement to have been $39,607.29. Leaving net working capital $141,770.00. I used instead of the last figure the round sum of $142,000. Now the working capital must also be provided during the construction of the proposed plant. The man who is about to build this plant or is building it, must from time to time build up the amount of this working capital until it reaches his maximum requirement and during the period prior to the manufacture of gas he will have been paying taxes on that according to the value of his property represented by the additional working capital put in. He will also have been losing the interest upon the money put in for working capital and the amount of these taxes and the amount of that loss of interest I have added to the total working capital of $142,000 and I have arrived at a total working capital of $150,896. These figures as to working capital with the one exception of the item of $142,000 which I use instead of $141,770, I obtained from the company. I had made my own estimates of the amount of working capital required in a case like this and had arrived at $160,000 but when the company's books were shown me I found I was too high and I put it back to exactly what I have
773 here.

Q. Took the actual present working capital in lieu of your estimate of $10,000 higher.

A. Yes, sir.

Q. Just a word to have no possible misunderstanding about interest and taxes during the construction, on this working capital. They are figured in upon the entire working capital during the entire period, but only upon the part that has been invested and for the term that it is invested and not earning?

A. Yes, sir. It is figured in this way. If I am going to invest a thousand dollars through a period of four years and I am going to invest it uniformly I have charged to the construction account the interest on the first thousand dollars for the first year plus the interest on the first and on the second thousand for the second year, plus interest on the first second and third thousand for the third year, plus the interest on the first second, third and fourth thousand for the fourth year excepting in each case that I deduct from that total one half of the interest for the years in which the investment was made, in other words the thousand dollars invested the first year would have been invested in equal portions throughout that year and if the interest rate is six per cent we would have lost only three per cent because we had on the average only one half of the full amount invested. But that thousand dollars invested the first year on the second year is drawing six per cent if that was the rate accepted. The

first year it only was a rate of three per cent because it would only be one half in use.

Q. Now the next matter which you take up is the matter
774 shown here in Exhibit "C" under the heading "Engineering, etc." I wish you would explain what is covered by these items?

A. Under Exhibit "C" in my report I have covered the items of engineering and supervision and casualty liability and of omissions and contingencies. The items of engineering and supervision I have placed at five per cent of the net construction costs of equipment covered. This figure of five per cent is very often exceeded in engineering work it being not infrequent to find large contracts in which the fee for engineering and supervision will run from ten to fifteen per cent. The item of casualty liability I have placed at two per cent of the net construction cost of equipment covered. The items of omission and contingencies I have placed at eight per cent. The total of these three foregoing figures is fifteen per cent and the fifteen per cent I have added to all of the net construction costs of physical equipment with the exception of real estate.

Q. And that is the reason why this does not appear as a separate item in this letter because it is included in the other items.

A. Yes, sir. It appears with the total.

Q. Now your casualty liability is intended to cover what sort of expenses in connection with the reconstruction of the plant?

A. The insurance of employés and of property against casualty of any kind.

Q. Such as personal injuries and things of that kind?

A. Yes, sir.

Q. What is the item omissions and contingencies intended to cover?

A. It is the universal experience of engineers and perhaps
775 not only of engineers, that a completed structure has required some things that were not foreseen. The man who has built a house has in nearly ever- case found extras at the end of the job. It is the purpose of this allowance of eight per cent to cover all of the omissions that might have been made in the calculations covering the inventory or other features either of physical or the other elements of value of this property and to provide also for such contingencies as must be provided for in being safe on any structure.

COURT: How could there be any in this case?

A. In the cost of reproducing this property?

COURT: That is where you have got the thing completed and got all the items.

A. Well it is not always sure that you have all items. There may have been items omitted from the inventory. I don't suppose that any large items have been omitted but there must certainly have been some omitted. There must certainly in my recalculation or in my calculation of the reproduction of this property there must have been some elements of cost which I have overlooked. There must be some features which are peculiar perhaps to this place that would tend to increase the cost of rebuilding with which I am not familiar.

A. Digressing for a moment and recurring to your illustration of the house, before you start to build a house, what is the fact as to whether plans and specifications show exactly what is to be done?

A. The plans and specifications are supposed to show exactly what is to be done in such detail as they may represent, but they never do cover everything entering into the property.

776 Q. If we were reproducing this particular plant knowing just exactly what the plant is, taking for illustration storms and strikes and things of that kind, can you tell in advance what expense may be incurred on that account?

A. No, sir; we must provide for not only strikes in local labor unions, but must provide for strikes at each of the sources of supply of raw material or on the transportation system, there may be a strike at the brick yards, or lumber yards or in the pipe works. All of these represent expense legitimately added to the cost of building the plant which must be provided for in any conservative estimate of the cost of reproduction.

Q. Now I wish you would state Mr. Lea whether or not in making estimates of the cost of work whether they are for replacing properties or not it is customary to include this item and what amount is usually allowed on work of this kind.

A. It is customary to include an allowance for omissions and contingencies in all estimates of the probable cost of any engineering work contemplated. The amount allowed for this purpose of course varies with the character of the work as well as with the various factors in a given kind of work and it is not infrequent to find omissions and contingencies represented by an allowance of more than fifteen per cent. I have allowed eight.

Q. Now the next item which is referred to in your letter to Mr. Haines of June 24th accompanying Exhibit 20 is real estate and I find that in the aggregate at the commencement of the first page of Exhibit "D" to this Exhibit 20.

A. You will find the details under Exhibit "F."

Q. Turning to Exhibit "GF" there is first a statement or description of the real estate. I wish you would state whether or

777 not that was taken by you from the inventory?

A. I have no values whatever taken from the inventory.

Q. I didn't ask you about the values. (Question read.)

A. The description of the property was taken from the inventory. I am not sure that the arrangement or parcels in the inventory is exactly as I have it because I re-wrote what was given me in the inventory, but I believe this is verbatim as shown in the inventory.

Q. That is found commencing at page 12 of Exhibit 15 is it not?

A. Yes, sir, the same thing.

Q. Now pas-ing over this description of the real estate to the value of it, on what did you obtain this value, have you knowledge as to real estate values in Des Moines?

A. I have no expert knowledge as to real estate values in Des Moines. I have made some investigation as to values here. I did get a general impression as to the relative value and I found some property considerably higher than I had expected to find, for in-

stance I didn't suppose there was any property worth $6,000 a foot out here, but I found some. I placed on this property a figure of $1.00 per square foot in the absence of any expert information as to the value of the various pieces because I find that throughout the country properties located approximately as these are worth a dollar a square foot and I submit it only for what it is worth, I don't claim to be a real estate expert.

Q. You have an item here add ten per cent for difficulty of obtaining contiguous lots at this time. That item I suppose explains itself?

A. I believe so.

778 Q. Here is the next item headed for sinking test holes, grading and filling?

A. To the cost of real estate I added no percentage to cover the statement of engineer, I added a lump sum of $5,000 to cover the expense of sinking test holes in the various parts of the ground under consideration and of grading and filling making a total net consideration cost of the property of $220,993. From my construction chart or reproduction chart I find the tax during construction would be $10,470 and that the loss of interest during construction would be $28,192 making a total reproduction value of $259,655 for the real estate of the company.

Q. And that is the amount for which you have carried into the letter that I refer to?

A. Yes, sir.

Q. Now then turning to the next Exhibit "G" you have covered there the buildings?

A. Yes, sir.

Q. And the first building referred to is the purifying house?

A. Yes, sir.

Q. Now will you turn to the inventory Exhibit 15 at page 16, and state whether the description of this building *is* shown in that volume of the inventory is the description which you have adopted in your report under the heading purifying house.

Q. Now will you turn to Exhibit 16 and tell us which plate there is a photograph. Look at plate 7 of this house we are talking about now. Plate 7 is a photograph of the purifying house.

Q. Sketch No. 3 gives the location of this purifying house at the corner of the property at east First and Market streets does it not?

A. Yes, sir.

779 Q. And what sketches in Exhibit 16 are sketches that relate to this building?

A. Sketch No. 4 shows the plans and elevations of this same building. Sketch No. 5 shows further plans and elevations. Sketch No. 6 shows foundations of this same building. Sketch No. 7 shows the arrangement of the purifying room connections and foundation for the piers. Sketch No. 8 shows some of the details for the lift for the purifier connections in this same building.

Q. Digressing for a moment, you spoke of this iron, shavings, and so on that you used in this house. This house is where that process is carried on.

A. Yes, sir; purifying house.

Q. I notice something marked oxide conveyor on sketch No. 5.

A. This iron, rust, oxide and shavings when the three are fixed up we call the mixture it makes still oxide and this conveyor lifts that mixture of iron rust and shavings.

Q. You talk about four tanks there as I recall it or purifying boxes?

A. Yes, sir.

Q. And about using three and keeping one fresh all the time and connecting it up when necessary. In that connection what is indicated by this round figure in the middle of the sketch on the left hand side of sketch No. 7 called center seal?

A. The center seal is a value having many compartments. It is a circular cast iron valve approximating four feet or four feet six in diameter, amde thurteen feet deep and cut in two in the middle and there are various cast iron compartments in it and to the outside of the lower half is made a number of pipe connections and through these connections and channels or divisions within the casing
780 due to the fact that the top half is movable on the lower half you may change the direction of the floe of the gas. The gas will come into that center seal and if you have the top cap placed in one position the gas will go through certain boxes in a certain rotation. Swing that top cap around in another position and it will go another way through some other boxes. The idea being there are four boxes, one of which was idle, while the other three are in use. If No. 3 shows any little trace of impurity then No. 4 is put on and No. 1 left idle and the gas is then turned through these other boxes. The center seal is then swung around so it causes the gas to go through boxes 2, 3 and 4, box one being idle.

Q. These plans show an elevator in this plate, what do they show that for?

A. The elevator is used for lifting oxide from the ground to the upper floor of the purifying house in boxes. When this oxide is out of the purifiers it may be in the basement being revived, that is called reviving oxide when the air is getting back to it and releasing the sulphur. The oxide may be out in the yard some distance away from the building. If out in the yard it is loaded in a buggy, in a two or three wheeled cart and it is quicker and more economical to put these carts on an elevator and lift the whole business up and dump the buggy into the purifying box that to throw it into a conveyor.

Q. Then the tops of these boxes are higher than the surface of the ground or ground level?

A. Yes, sir. The bottom of them are above the ground by several feet. They are eight feet ten above the floor line, the bottoms of the boxes.

781 Q. How high up is the top of these boxes where you do this work?

A. About eight feet.

Q. From the bottom of the box?

A. Seven feet to the top of the box. Fifteen feet ten inches from the top of the ground floor to the top of the box.

Q. For what purpose is this hoisting apparatus that is referred to in Sketch No. 8 used?

A. These cast iron purifiers are provided with steel or wrought iron covers. The boxes being twenty feet square and being only one cover it is too big for men to lift and a mechanical device has to be provided. This is simply a device for the multiplying of the power of the man so he can by turning a hand wheel lift a very heavy covering and then work it away from the boxes so a man could get into that box to empty it.

Q. Turning to Exhibit 20, under purifying house, have you in detail here the figures making up your estimate of the reproduction cost of this building?

A. Yes, sir.

Q. Or the net construction cost?

A. Yes, sir. The net construction cost figures appear here. That is to say the net construction cost figures which enter the reproduction cost are here.

Q. You begin with clearing site?

A. Yes, sir.

Q. What is next?

A. Excavation.

Q. And next?

A. Foundations.

Q. In order to connect this up with the inventory will you turn to page 18 of Exhibit 15 and state whether these items which
782 are shown on the page of Exhibit 20 to which we have been referring are the same items, that is clearing site and staking out, excavating foundation forms foundation back filling walls etc., that appear on pages 18, 19, 20, 21, 22, 23, 24 of Exhibit 15?

A. I have in my report covered each of the items shown in Exhibit 15, but not in the same way nor in the same detail. I have summarized.

Q. Now I notice here something we might as well call attention to now. On page 18, under foundations I see that Exhibit 15 gives the number of brick as 3990 while you have it as 3056. I will ask you whether in what purported to be a copy of the inventory furnished to you there were a number of these variances in amounts such as this?

A. There were some such variances, yes, sir.

Q. You followed the copy which you received?

A. Yes, sir.

Q. And are they of enough consequence to make any difference in your ultimate result?

A. No, I looked into that to make sure and I found they were of no consequence whatever, in giving the brick there would be once in awhile a few brick difference on them but not enough to affect the value in any case.

Q. Here is an item I want to ask you about. Under foundations you have concrete costs, that is concrete foundation.

A. Yes, sir.

Q. Then you have forms. What do you mean by forms?

A. The boards which are placed in a position to hold the concrete as it is being poured.

Q. Now you say so many brick at $16.50. What do you mean by that?

783 A. $16.50 per thousand brick laid.

Q. That covers brick and other material and labor?

A. Yes, sir.

Q. Brick in place. That is under the foundation. Now in walls I notice an item 235,742 brick at $17.00. That is the brick in the walls, as I understand it?

A. Yes, sir.

COURT: I don't understand that $16.50 per thousand for brick in the wall in the foundation and for brick in the walls, how much?

A. $17.00 per thousand.

Q. I might ask you if you will explain why you made that difference of 50 cents?

A. I estimated the cost 50 cents more per thousand to lay brick in the wall than to lay them in a foundation of that kind.

Q. Then your scaffolding is scaffolding for what purpose?

A. For the masons to tsand on and hod carrier to walk on.

Q. The next item is what?

A. Roof.

Q. And you sub divide that into what?

A. Into the various parts composing the roof which is cover or slate, wood supports for the slate, some iron trusses and sheathing.

Q. In each instance your price is for the material in place?

A. Yes, sir. These prices under net construction cost cover only the material and the labor.

COURT: What do you figure that amount of brick in the foundation?

A. 3056.

784 Mr. GUERNSEY: You see that is less by 944 brick than the amount of the inventory.

A. The figure in the inventory you have is somewhat higher than the figure in mine, there is some error. My figure is 3056. To get that you would take 3056 and multiply by the cost of the brick per thousand and arrive at the net construction cost chargeable to brick, multiply 3,056 by 16.50.

Q. Taking as an illustration, this item of 3056 brick at $16.50 a thousand, $50.00 if that is multiplied out it gives some odd cents over $50?

A. Yes, sir. If the odd cents are fifty or more, I run them up to the next dollar. If they are less than 50 cents I drop them and keep the figures in even dollars rather than cents.

Q. And what is the fact as to whether that is customary in making estimates?

A. That is customary in estimates of this kind.

COURT: Did you give the brick in the walls?
A. Yes, sir; 235,742.
COURT: What is the total amount of that?
A. $4,008.00 for the brick.
Q. Take for example the concrete in the foundation there, you have how many cubic yards?
A. Thirty nine.
Q. Why did you reduce it to yards?
A. Because it is customary to estimate concrete work by the cubic yard.
Q. You estimated that in that place at how much per cubic yard?
A. $8.00 with the forms extra at $2.00 per yard.
COURT: What is the total amount?
785 A. $312.
Q. The next item you have here is monitors?
A. Yes, sir.
Q. How much did you estimate the squares of slate at?
A. 6.55 squares at $14.50 a square.
Q. Aggregating what?
A. $95.00.
Q. The next item is 898 feet B. M., while you have 892 feet wood supports?
A. The 892 feet B. M. means 892 feet board measure of lumber and knowing that these were the wood supports in the monitors I just put them in 892 feet wood supports.
Q. You put them in at what price?
A. $41.00 per thousand in place.
Q. Covering labor and material?
A. Yes, sir.
Q. Amounting to how much?
A. $37.00.
Q. The next item I find in the inventory is iron, 134 pounds.
A. That iron is also for supports. I put that in at six cents per pound a total of $8.00 in place.
Q. Now the next item in your report Exhibit 20 and in the first volume of the inventory Exhibit 15, is sheathing. You put that in at what?
A. 655 square feet, that is also 655 feet board measure in this case at $40.
Q. Amounting to what?
A. $27.00.
Q. The next item I find in the inventory and in your report is flashing tin, 144 square feet. What did you estimate that
786 and what is the aggregate for that?
A. 14 cents per square foot in place or a total of $20.
Q. Now the next thing in the inventory and in your report, Exhibit 20 is floors, the first sub item being concrete 2752 square feet in your report and 2753 in the inventory. At what did you estimate this concrete.
A. This is concrete floor and that is customarily estimated on the

square foot basis. I put that in at 12 cents per square foot or an aggregate of $331.

Q. That is the floor complete?

A. That is the floor comp-ete with labor and material.

Q. The next item is wood. That means wood what?

A. That is wood in the floor. I estimate that at nine cents per square foot.

Q. How many square feet?

A. 1169 square feet.

Q. What are the dollars?

A. Aggregate $106.

Q. Your next item is concrete partitions and the next item in the inventory is partition for holding oxide concrete. I wish you would tell what that is in the first place.

A. The ground floor of the purifying house is made of cement. the purifying boxes are about eight feet above this floor and these boxes are provided with chutes in the bottoms of them so that the oxide may be dropped to the floor below for revivication. Now this reviving of oxide is brought about more quickly if the material be moist or wet. This ground floor of the purifying house therefore has some concrete partitions, they are very low, about 12 or 16 inches
I should judge, dividing the floor into sections so you may
787 have water in one part of this floor without having water in the others while you are treating oxide.

Q. You have how much at what price and what is the aggregate?

A. The concrete partisions three cubic yards at $10.00 $30.00. I might say that the price is up on that kind of work because of the nature of it, the work is small, they are narrow *m*artitions.

Q. Now Mr. Lea, before we pass that item you have estimated that in cubic yards and in the inventory on page 22 it is given in cubic feet, there would be one extra cubic foot there, did you ignore that?

A. I ignored that, I took that as three yards.

Q. Now the next item that I find in the inventory here is forms, 498 feet board measure. How did you estimate the forms?

A. The estimate is based on the volume of concrete. There were three cubic yards of concrete and forms on a job like that cost a great deal more than the previous instance, cost fully $8.00 per cubic yard of concrete. $24 for the forms for these little partitions. In other words forms on a job like that cost almost as much as the concrete.

Q. And your total on account of these forms is how much?

A. $24.00.

Q. Now the next item in the inventory is floor supports 26,932 feet B. M. and in your exhibit 20 supports under the heading floors, 26,932 feet B. M. At what amount did you estimate that and the total?

A. I estimated that lumber at only $26 per thousand which would be about the cost of that, of the lumber itself because there is practically no labor on that stuff.

Q. And what was the total in dollars for that item?

788 A. $701.

Q. Now you have another item, framing and erecting? What is that?

A. That is the preparation for the laying of the ceemnt floor, the timbers used in that and the labor.

Q. And that aggregates how much?

A. $404.

Q. And that is an item that is incidental to the construction of these floors that are referred to on page 22 of Exhibit 15.

A. Yes, sir.

Q. And should go there then?

A. Yes, sir.

Q. Now I notice the next item in the inventory is doors, batten four, 155 square feet. In what form does that appear in your Exhibit 20?

A. Under the word doors 155 square feet batten, 15 cents per foot $24.00.

Q. The words "per foot" do not appear in your exhibit?

A. No, sir. I have 155 feet batten 15 cents.

Q. The next item in the inventory Exhibit 15 is panel, 54 square feet?

A. I have put that door 20 cents per square foot or $11.

Q. What is the next item?

A. That is the labor of placing the doors which I estimate at 5 cents per square foot.

Q. For hanging and things of that kind?

A. Yes, sir; actual labor.

Q. That amounts to how much?

A. $11.00.

Q. That also should go under this item "doors" on page 22?

789 A. Yes, sir.

Q. Now the next item on page 22 of the inventory is windows and it appears in the inventory plain 20 325 square feet?

A. I estimate that windows plain 325 square feet at 50 cents.

COURT: I don't understand this $11.00 hanging the doors.

A. There are two kinds of doors put in and I estimate the work of setting and placing the doors as so much in addition, $11 for hanging these doors, all of the doors covered under that, five doors altogether, four batten and one paneled. $11 for hanging the five doors.

Q. Now the next item in the inventory appears under the head windows continued at the top of page 23, box five, 510 square feet. How does that appear in your exhibit 20, your report?

A. Under the heading wibdows box, 510 square feet at 75 cents, total of $383.

Q. And the next item is fitting and setting of all of the windows box and plain.

A. Yes, sir; at 35 per cent of the cost of the windows making a total of $191.

Q. How do you get at that 35 per cent?

A. That is the customary allowance on the cost of windows for the labor of hanging and placing the windows.

Q. Now the next item page 23 is sills cut stone 34 cubic feet. On your report how is that?

A. Sills cut stone, 34 cubic feet at $1.75 a total of $60.

Q. The next item appearing on page 23 of the inventory is lintels, cut stone 72 cubic feet. That appears under the head of your report, Exhibit 20.

A. Yes, sir.

Q. And you estimate it at what amount?

790 A. Cut stone 72 cubic feet at $1.75 a total of $126.

Q. Iron under the same heading 2,555 pounds?

A. I have iron 2,555 pounds at 4 and one half cents.

Q. Amounting to what in the aggregate?

A. Amounting to $115.

Q. The next item which appears in the inventory on page 23 is brick work, under the head of painting, brick work west and south walls 3,435 square feet?

A. I have painting brick work 3,446 square feet at 6 cents a total of $207. I also have for painting the woodwork 1,790 square feet at nine cents a total of $161.

Q. The next item which appears here in the inventory is pit for pipe, 180 brick.

A. There is a small pit in the floor in which the 180 brick are used. I put them in at $19.00 per thousand or a total of $4.00.

Q. The next item in the inventory is driveqay, 587 brick. How does that appear in your report.

A. Under driveqay 587 brick at $19.00 a total of $11.

Q. What are the brick for in the driveway?

A. This is a small runway from the yard level down to the ground level of the purifying house, a matter of two or three feet drop there. A small brick runway.

Q. Then we have wood floor?

A. There are 18 feet board measure of wood in that little runway and I put that in $41 per thousand or a total of $1.00.

Q. This item in the inventory under floor two inch plank eighteen feet B. M.

A. Yes, sir.

Q. Next to the last item.

A. Yes, sir.

791 Q. The next item in the inventory is brick laid on edge 56 square feet. How does that appear in your report?

A. That appears as brick floor 56 square feet at ten cents, a total of $6.00.

Q. That gives $5.60, nearer six than five?

A. Yes, sir.

Q. Now the next item in the inventory is the first item of page 24 stairs common, three treads, finish including handrail sixteen treads. How did you put that in in your estimate?

A. I put them in together under the heading stairs, nineteen treads at $1.50 erected a total of $29.

Q. Then the next item which appears in the inventory here is brick steps 189 brick.

A. I omitted them in my report.

Q. They did not appear in the list that as given you as I understand it?

A. Yes, they were not in the detail which I had, were omitted.

Q. The next item which appears in the inventory page 24 is platform 162 feet board measure?

A. I have it under platform 162 feet B. M. at $26.

Q. What else have you under that same item?

A. Erection $10.00 I have evidently made a mistake in there, I have got that in $26. I have got a wrong figure there.

Q. What should it be?

A. Should be about $3.50 or $4.00. I have got it $26.

Q. In other words, you put in the full thousand instead of 162 feet?

A. Yes, sir; I have carried over the price of a thousand feet instead of the price of 162 feet, made a mistake. That is $4.21 where I have got $26, I put that in at $4.00 and the *the*
792 erection would be about $2.00 instead of ten. In other words that would reduce the net construction cost of that building as I have it by $30.00. That will take $30.00 off the cost of the building as I have it, the net construction of it.

Q. Now then Mr. Lea, this gives you as what you call the net construction cost of this building how much?

A. $9,507.

Q. Turn back if you please Mr. Lea to Exhibit "E" in your report and tell us how this building we have just referred to is designated under the heading buildings on this Exhibit "E"?

A. Under Exhibit "E" which is a summary of physical equipment and net construction cost this purifying house we have been talking about appears as one of the buildings entering into the total amount of $85,723. The Exhibit "E" shows a total of net construction costs as obtained by taking the total of each of the buildings for example in the construction cost as shown in Exhibit "G" of my report.

Q. Now turn back to Exhibit "D". The first page of that Exhibit, how is this building designated there?

A. Building No. 1, the purifying house shown under the head building No. 1 A. B.

Q. Showing what amount?

A. The first column here is total reproduction cost and for that building that amount is $11,860.

Q. And how do you account for that difference between $9,507 less $30 on account of the error that has been referred to and this total of $11,860.

A. You will find first net construction cost of the building
793 as shown here being the estimate of the labor and material in the entire building that is $9,507 and to that you must add 15 per cent for engineering, casualty liability, omissions and contingencies and supervision during construction. To that amount,

this net construction cost plus engineering you must add taxes during the construction and loss of interest during the construction and the figures thus obtained is the figure shown under total reproduction cost, Exhibit "D" of my report. Take off about $26 from that final figure shown there of $9,432 the present value of that building instead of $9,132 it should be only $9,106.

Q. $11,860 is the total reproduction cost?

A. Yes, sir.

Q. Now taking this $11,860 as the total reproduction cost of this building as it appears on the page of your report headed summary of physical equipment in Exhibit "D" and I find there is a column following it which is headed age in years. In that column you have stated what as to this building.

A. That this building is nineteen years old.

Q. In the next column is the heading assumed life years. What do you mean by that?

A. That is the average life of buildings of that kind.

Q. And that is how long?

A. Fifty years.

Q. Then your next column is what?

A. The per cent condition.

Q. What do you mean by per cent condition?

A. Ratio of the present condition of the building to its original or new condition.

Q. As to this building that is what?

794 A. 77 per cent.

COURT: How did you figure that per cent?

A. The depreciation of a building or anything else does not accrue in a straight line, that is it is not uniform, put up a new house today and at the end of the year the building will have depreciated some, but it won't be noticeable. In other words the loss in value due to depreciation in that building the first year of its life is not nearly as great as the corresponding loss during the ninth year. In other words the loss increases as the age go- on. Now there have been curves platted that shows all that if you want to see it.

COURT: I don't care about that, I just simply wanted to know how you arrive at the 77 per cent.

A. It is because a building depreciates faster as it gets older.

Q. What in your judgment is the present value as you have headed it here of that building standing a-one there?

A. $9,132.

Q. With the correction?

A. With the correction because of the error of my own of $30 in construction costs, makes a final deduction here of about $26.

Q. That would make it what?

A. $9,106.

Q. Now you have on this same page as to this building another column that is headed depreciation annuity on sinking fund basis. What is that?

A. The figures in that column have nothing to do with the determination of the value of the property, but they do have to do

with the future depreciation of the property and consequently
795 with the future operating expenses and I have just included them with the balance of this material so I would not be to the trouble required and lot of extra work of writing it over.

Q. So that $105 which appears in the column just referred to as to this building under consideration represents your judgment as to what?

A. $105 represents the amount of money which must be set aside annually at the give- rate of interest for fifty years having the interest compounded annually to arrive at the reproduction cost of the building at the end of its life. This is not the depreciation per year, this is the depreciation annuity.

Q. You say that the brick that are involved in pilasters and cornices have been included in the brick in the walls at $17 a thousand.

A. Yes, sir.

Q. Here you only put that at $4.25?

A. I have included the number of brick in pilasters and cornice at 25 per cent additional over the rate on the wall brick because it costs 25 per cent more to lay cornice brick than on the wall and that 25 per cent applies only to the number of brick in the pilasters and cornice.

Q. Your estimate of so many brick in the wall at $17.00 includes the brick in the pilasters and cornice. Is that right?

A. Yes, sir.

Q. And because the bricklaying where brick are in pilasters and cornice cost more than straight work in the walls, you add
796 this $4.25 to the number of brick that are used in that way?

A. Yes, sir.

Q. That amounted to how much?

A. $55, the rest of the pilasters.

Q. Pass to the next building which is on the next page of Exhibit "G" of your report. Is that the building that is referred to at page 26 of the inventory fire brick shed building 1 C?

A. Yes, sir.

Q. By what sketches is it shown, turn to No. 9 will you please?

A. Sketch No. 9 shows this same shed.

Q. Now referring first to your description of this fire brick shed that is adopted by you from page 26 of Exhibit 15 is it not or practically?

A. Practically, yes.

Q. And verified by your own examination of the building?

A. Yes, sir.

Q. Now on the next page you have your net construction cost. What is your first item?

A. Clearing of the site.

Q. How much?

A. $2.00.

Q. The next item?

A. Excavation six cubic yards at $1.10 or $7.00.

Q. Returning back to that clearing site and staking out, that is

the first item of page 27 of Exhibit 15 corresponding with your item clearing site, $2.00?

A. Yes, sir.

Q. And then the next item on page 27 excavating six
797 cubic yards is what corresponds with your excavations six cubic yards at $1.10, $7.00 which you just gave?

A. Yes, sir.

Q. The next item I find on page 27 of the inventory Exhibit 15, is foundations, 389 brick in cement mortar, you were twenty or thirt- brick less I see, 24 to be accurate?

A. Yes, I have 365.

Q. You estimate them at how much per thousand?

A. $17.

Q. Aggregating what?

A. $7.00.

Q. The next item shown at page 27 of the inventory is wall, south wall No. 2 corrugated iron 1.2 squares. What is the item corresponding with that?

A. 1.2 corrugated iron at $7.00 total of $9.00.

Q. The next item on page 27 of the inventory is roof, No. 24 corrugated iron 2.63 squares. You have a little less than that 2.47?

A. 2.47 squares corrugated iron at $7.00 total of $18.00.

Q. Then the next item at page 27 of Exhibit 15 the inventory is roof supports iron, 1,311 pounds, how do you have that?

A. I have iron supports 1,311 pounds at six cents total to $79.

Q. The next item in the inventory page 27 is wood, 51 feet B. M.

A. I have wood supports 51 feet board measure at $41 a total of $2.00.

Q. Making the aggregate net construction cost of this fire brick shed building 1 C how much?

A. $124.

Q. Turning to Exhibit "E," how is this fire brick shed building
1 C designated on the first page of your Exhibit D to your
798 report Exhibit 20?

A. Under the head of building No. 1 C.

Q. And you have as its total reproduction cost what amount?

A. $155.

Q. As compared with $124 net construction cost?

A. Yes, sir.

Q. What items make up the difference?

A. Engineering supervision, casualty liability, omissions, contingencies, taxes during construction and loss of interest during construction.

Q. And the age of this building is what as shown by this summray of physical equipment?

A. Eight years.

Q. What is the life assumed for this building?

A. Thirty years.

Q. And what is its present per cent condition?

A. 82.

Q. Under your column headed present value, what in your judgment is the amount that should be given?

A. $127.

Q. Did you compute as to this building depreciation annuity on sinking fund basis in the manner and upon the theory which *wou* stated with reference to building 1 A and B?

A. Yes, sir.

Q. And to what did this amount?

A. $3.00 per year.

Q. Now let's go over to the next building. The next building which you take up is what?

A. Meter, exhauster and wash room, building No. 3.

Q. You first have a historical and descriptive statement?

799 A. Yes, sir.

Q. Is that substantially the same as the statement of like character commencing at page 28 of Exhibit 15 as to this same building?

A. Yes, sir.

Q. I wish you would turn to Exhibit 16 and state whether sketches 11, 12, 13, 14, 15, 16, 17 and 18, relate to this building and its contents?

A. They do.

Q. State whether or not this description and historical matter was verified by you by observation so far as that was practicable by inspection?

A. It was yes, in a general way, it was all verified by me.

Q. Now the first item which I find as to this building in Exhibit 15 is in the inventory is on page 30 clearing site and staking out. That apears in your inventory as what and at what amount?

A. As clearing site in the amount of $20.

Q. Now the next item appearing upon that page in the inventory is excavating foundations 161.28 cubic yards. That appears how in your report and at what price?

A. Under excavation foundations 161.28 cubic yards at $1.10 a total of $1032.

Q. Then the next item appearing on page 30 of Exhibit 15 is cellar excavation or excavations cellar 945.86 cubic yards. How does that appear and what amount in your report Exhibit 20?

A. Under the head excavation cellar 945.86 cubic yards at $1.30 a total of $1.230.

Q. The next item appearing at page 30 of the inventory Exhibit 15 is foundations rubble stone 184.83 perches. How does

800 that appear in your report, Exhibit 20?

A. Under foundations rubble stone 187½ purches at $5.50, a total of $1032.

Q. The next item appearing on page 30, Exhibit 15 is back filling 169 cubic yards. How does that appear in your report Exhibit 20 in connection with this building?

A. Back filling, 169 cubic yards at 6 cents, a total of $102.

Q. The next item appearing at page 30 Exhibit 15 is walls, common brick and pilaster and so on, an aggregate of 117,282 brick,

that appearing on page 32 of the inventory. How does that appear in your report?

A. Under walls 117,278 brick at $17.00, total $1,994.

Q. Now it appears that in this building there were brick in pilasters to the number of 1548. How much additional have you if any added to your estimate on account of the fact that these brick were in pilasters etc., as shown in your report.

A. I have added to the price per thousand of brick laid in the wall 25 per cent of that price to each of the brick laid in pilasters or 1,548 brick at $4.25 making a total of $7.00.

Q. Your report shows pilasters, etc. Does that include cornices as well?

A. Yes, sir.

Q. Now you have a further item in connection with these walls as to scaffolding. Please state what you estimate on that account?

A. This appears without stating the amount the first item of page 33 of the inventory. I include scaffolding at approximately $1.00 per thousand making a total of $118.

801 Q. The next item on page 33 of the inventory just referred to Exhibit 15 is emplacements. That runs on in the inventory to and including the first matter set out on page 34 with an aggregate of 4489 brick. How does that appear in your report and what amount?

A. Under the heading emplacements 4,489 brick at $17 a total of $77.

Q. What do you mean by emplacements?

A. Little brick walls around the grated windows below the ground level.

Q. The next item appearing upon page 34 of Exhibit 15 is water table dressed stone, 140.11 cubic feet. How does that appear on your report and what amount?

A. Water table dressed stone, 140.11 cubic feet at $1.75 a total of $246.

Q. The next item in Exhibit 15, page 34 is window sills cut stone 11.5 cubic feet six sills as per sketch. Now in the first place how does that appear in your report here?

A. Appears as window sills cut stone, 11.5 cubic feet at $1.75 making a total of $21 to which I have added $4.00 per sill because there is some fancy cutting on them making an addition of $24.

Q. I wish you would turn to Exhibit 16 sketch No. 11 and point out to the Master the sketch showing the cut stone work on account of which you make the additional allowance?

A. Sketch No. 11. That spans the window.

Q. Now the next item in the inventory is lintels cut stone 20.68 cubic feet, eight lintels as per sketch. That is page 34 of Exhibit 16. How do you show that?

A. Lintels cut stone 20.68 cubic feet at $1.75 total of $37 to which I have added for rather elaborate cutting of each of these lin-

802 tels $20 per lintel or $160.

Q. What is the fact as to whether there is a sketch of that cutting on sketch 11 of Exhibit 15?

A. Sketch 11 shows a detail of the lintel, the upper right hand corner. Here is the sill I have allowed $4.00 for cutting and I have allowed $20 for cutting that lintel a very elaborate piece of work.

Q. The next item on page 34 of Exhibit 15 is floors. A balcony. What does that A mean?

A. One of the rooms in that building.

Q. A balcony (2 inch concrete on 2 inch plank) 436 square feet concrete two inches thick. How does that appear in your report and at what figures?

A. Under floors A balcony 436 square feet at 14 cents, $61 and 872.12 square feet at 14 cents, a total of $122, the first figure being the balcony and the second the floor proper of room A.

Q. The next item page 34 of Exhibit 16 tim-ers 654 feet board measure?

A. I have that timber 654 feet board measure at $41, total $27.

Q. Then the next item on the said page is A basement (concrete two inches thick) 497 square feet. What do you have for that item?

A. I have it under floors A basement 497 square feet at 8 cents a total of $40.

Q. The next item on page 34 of Exhibit 15 is room B, floor timbers 600 feet board measure?

A. I have B timbers 600.79 board measure at $41 a total of $25.

Q. Turning to page 35 of Exhibit 15, at the top of the
803 page the first item is floor (2 inch concrete on 2 inch plank) 298.71 square feet concrete. How does that appear in your report Exhibit 20, and at what have you estimated it?

A. I have floor 298.71 square feet at 14 cents, a total of $42 and 597.42 square feet at 14 cents a total of $84. Cast iron plate there is a separate item.

Q. Turning back to that floor on page 35 of the inventory, you will notice there is 298.71 square feet concrete and then 298.71 square feet floor. You have 298.71 and then 597.42 square feet in your report. Is there a discrepancy between the two and if so state it, and if not explain the situation?

A. That floor is two inch concrete on plank and the detail I have shows 298.71 and 597.42 square feet.

Q. So that is an instance where there was a discrepancy between the figures furnished you and the inventory?

A. That is one of them.

Q. The floor appears to be two inch concrete on two inch plank. The 298.71 square feet of plank floor two inches would amount to 597.42 at one inch wouldn't it?

A. Yes, sir.

Q. Now is your figures there of fourteen cents per square feet for that wood floor based upon one inch stuff?

A. I would have to look that up Mr. Guernsey, I can't say, I would have to get the detail.

Q. Can you do that now?

A. No, I have it in my room not here.

Q. Will you make a memorandum of that and look it up between

now and tomorrow morning so we may straighten it out as
804 we go along. Now your next item is cast iron plates. That is the item C I plates on page 35 of Exhibit 15 3821 pounds. You estimate it at what?

A. Cast iron plates, 3821 pounds at four cents $153.

Q. Now we have next on page 35 in this Exhibit 15, room C, floor timbers, 486.8 feet board measure.

A. I have C timbers 486.8 feet board measure at $41, total of $21.00.

Q. The next item on Exhibit 15, page 35 is room C, double floor one inch match 322 square feet?

A. I figured that as floor under C, 645 square feet at 8 cents.

Q. And the 645, what is the fact as to whether that is 322 double?

A. That is 322 double. I judge that is what is the case up above but I can't remember it. This entry comes under Room C at 322 square feet, but where a double floor would be equivalent to 644 feet and my figures based on board measure was double the number of square feet.

Q. Your amount for that item is how much in dollars?

A. $52.

Q. The next item on page 35 is basement brick flat, 301.8 square feet? How does that appear in your report?

A. As base floor 391.8 at 11 cents, $34.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

805 Saturday Forenoon Session.

JULY 22, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

HENRY I. LEA, re-called for further direct examination, examined by N. T. Guernsey, Esq., testified as follows:

Q. Now, Mr. Lea, last evening we had two items here about which there was a little uncertainty, you were going to look up; have you looked them up?

A. Yes, sir.

Q. Referring to these two items, Mr. Lea, which was the first one?

A. The floor in room B, building 3. That is a two inch plank on concrete, and the concrete is based at the concrete rate. The floor being two inches thick is double in area; so we doubled that.

Q. So that 597.42 square feet is what you say is correct?

A. Yes, sir.

Q. What is the next item you were going to look up?

A. I believe it was room A, where the same thing occurs.

Q. What did you find as to that?

A. That was also a two inch floor and the area was doubled, because unit parts was based on a one inch floor. My price was based

on a floor *inch* inch thick. This floor was two inches thick, so I doubled the area and used the one inch unit.

Q. Now, passing to room B, floor timbers, 960 feet B. M., how does that appear on page 24 your Exhibit 20?

A. I have it 960 feet B. M., $21, total $40.

Q. The next item, double flooring, 7/8 inch thick, 736 square feet?

A. That appears as flooring 722 square feet. I have
806 doubled that because the floor is double.

—. The next item, room D, basement brick, flat, 602.42 square feet. How does that appear on your Exhibit 20?

—. How does that appear on your Exhibit 20?

A. Basement floor 602.42 square feet, 11 cents, total $67.

Mr. BYERS: What is that item Mr. Guernsey in Exhibit 15, how does the item read there?

Mr. GUERNSEY: Room D, basement, brick, flat 602.42 square feet.

Q. Now, this last item is on page 35. What kind of a floor is this floor in Room D?

A. Inch and seven-eighth.

Q. Now, going to the next page of the inventory, page 36, roof supports. We have room A, wood trusses 509.65 square feet B. M.; how does that appear in your report?

A. Room A, wood trusses 509.65 square feet *N.* M. $21, total $41.

Q. Now, at the top of page 36, exhibit 15, the next item of the inventory appears Room B, inch and a quarter pipe 246 feet. How does that appear in your report?

A. Room B, 246 feet, one and one-half inch pipe, 30 cents, total $74.

Q. Does your inventory read a*nd* inch and a quarter or an inch and a half?

A. It is an inch and a quarter in the inventory. There is practically no difference in the cost of the pipe for a job of that kind; an inch and a half costs practically the same as an inch and a quarter.

Q. The next item on page 36 is Room C, wood trusses 713.51 foot B. M. How does that appear on page 24 of your report Exhibit 20?

A. As room C wood truss 713.51 feet B. M. $41. total $30.

Q. The next item on page 36 of the inventory room D, wood trusses, 1427 feet B. M. How does that appear on page 24 of Exhibit 20?

A. Room D, wood truss 1427 feet B. M. $41. total $59.

807 Q. B. M. means board measure?

A. Yes, sir.

Q. The next item, room D, page 36, on Exhibit 15, rafters 651 feet, B. M. How does that appear in your report?

A. Room D, rafter, 651 feet, B. M. $21. total $27.

Q. The next item on page 36 of Exhibit 15, sheathing 3012.58 square feet. How does that appear in your report?

A. That appears here sheathing, 2977, 5 cents, total $149.

Q. You are a little under what the inventory is?

A. Yes, sir.

Q. Now, the next item on page 36, Exhibit 15, is roof, slate 3012.58 square feet. You have that item how in your report?

A. Slate 29.776 squares, $14.50 total $432.

Q. Here then you have made your estimate on a little less than the actual amount shown by the inventory?

A. Yes, sir.

Q. Now, the next item, page 36, the last one on the page, ventilators, two. How does that appear on your report?

A. As ventilators, two, $9, total $18.

Q. Turning to page 37 of Exhibit 15, the first item is gutters, 197 feet. What do you mean by gutters?

A. The troughs taking the water away from the roof.

Q. They appear how on page 24, exhibit 20?

A. As gutters, 197 feet, 20 cents, total $40.

Q. Now, there it seems to me—it is a trifling matter—that your amount would be $39.40; that is, 197 feet, 3 feet less than 200?

A. Yes, there has evidently been a drop to the dollar below; it should have been $39.40.

Q. The next item is down spouts, 60 feet with trough; how
808 does that appear on page 24 of Exhibit 20?

A. Down spouts 60 feet, 15 cents, total $9.

The MASTER: I see you differ here on the amount of the squares of slate?

A. Yes, I have less than the inventory shows.

Mr. GUERNSEY: As I said yesterday, there are some slight inaccuracies, but that they were so small that it wouldn't be worth while to figure them up.

Q. The next heading on page 37 on the inventory Exhibit 15 is doors, beginning with transom, 163.99 square feet. How does that appear on page 24 of your Exhibit 20?

A. Under doors, panel with transom, 163.99 square feet at 30 cents, total $49.

Q. Now, that is the cost of what?

A. That is the cost of the transoms themselves as delivered on the ground.

Q. You say panel with transom

A. That is panel with transom as delivered.

Q. Is that the transom alone?

A. That is the panel door with the transom.

Q. You separate then the door and placing and fitting of the door?

A. Yes, sir.

Q. What do you estimate the placing and fitting at?

A. Thirty-five per cent of the cost of the door with transom delivered, making a total of $18.

Q. How do you get at the thirty-five per cent?

A. That is commonly accepted as the percentage allowed by con-

tractors as covering the work necessary in placing and fitting doors of that type.

Q. Now, the next item in the inventory is on page 37 and
809 is panel, common, one, 37.53 square feet. How does that appear on page 24 of Exhibit 20?

A. That appears as panel, common, 37.53 square feet, at 25 cents, total $9.

Q. Now the next item is batten, one, on the inventory page 37, 37.53 square feet. How have you that on page 24 of your report?

A. Batten 37.53 square feet, 15 cents, total $6.

Q. And for placing and fittting that door?

A. An addition of 35 per cent, as in the other cases, making $2.

Q. Did I ask you about the placing and fitting of the door above?

A. No, sir.

Q. You added how much?

A. 35 per cent of $9 or $3.

Q. $3 is a trifle under 35 per cent?

A. Yes, sir.

Q. That illustrates how you take an even basis?

A. Yes, sir.

Q. The next thing on page 37 of the inventory is windows, 14, 274.88 square feet; that appears how on page 24, Exhibit 20?

A. Under the head of windows, 274.88, 50 cents, total $137.

Q. And that covers the windows alone?

A. The windows delivered.

Q. And not the placing and fitting?

A. No.

Q. How much have you estimated the placing and fitting?

A. 35 per cent of the cost of the windows, or $48.

Q. You adopt that for the same reason as you did before, because it is a recognized standard of percentage?

A. Yes.

Q. There appears in this inventory on page 37 one boarded
810 window, 21 feet, B. M. What is a boarded window?

A. It is an opening left in the wall meant for a window, boarded up without the window.

Q. How did you estimate that?

A. I have it here, windows boarded, 21 feet B. M. $21, total $1.

Q. The next item on page 37, one stairs, 36 treads, as it appears on Exhibit 15. That appears how in your report?

A. That appears as 36 treads, 50 cents, total $18.

Q. Then on page 38 of Exhibit 15, the first item, platform, 43.73 feet B. M. .068 cubic yards concrete. How does that appear in your report Exhibit 20, page 24.

A. Under the head of platform, 43.73 feet B. M. $41, total $2. .068 cubic yards concrete, $15, total $1.

Q. Now the next item on page 38 of Exhibit 15, steel bracing, 1548.72 pounds. How does that appear on page 25 of your report, Exhibit 20.

A. Under the heading of steel bracing 1548.72 I-beams at 4½ cents, total $70.

Q. The next item is C. I., cast iron, I suppose that means?
A. Yes, sir.
Q. Bracket supports 152 pounds, on page 38 of the inventory. How does that appear in your report?
A. As 152 pounds C. I. brackets 3½ cents, total $5.
Q. The next item on page 38 of Exhibit 15 is railing, room A, one inch piping 76 feet erected. How does that appear in your report on page 25?
A. As railing, 76 feet, one inch pipe, 15 cents, total $11.
Q. I might state generally that where I refer to quantities in the inventory, I refer to Exhibit 15, so that I will not repeat that Exhibit 15 so continuously. The next item on page 38 of the
811 inventory is sumps, room A. What is sump?
A. It is a little pit in the floor or any place else for the collection of water or other liquid which is to be pumped from there to some other point.
Q. It is a low place to which it drains?
A. Yes, sir.
Q. The first thing that appears on page 38 of the inventory, room A, excavation, 2.44 cubic yards. How does that appear in your report?
A. As A excavation, 2.44 cubic yards, $1.10, total $3.
Q. The next item is brick work under sumps 450 bricks. How does that appear on page 25 of your report?
A. 450 brick, $17. total $8.
Q. And the final item under the head of sumps—covers, cast iron, 351.33 pounds. How does that appear on page 25 of your report?
A. As covers 351.33 pounds at 3½ cents, total $12.
Q. Now, the next item, page 38 of the inventory, is painting, 1510 square feet. How does that appear on page 25 of your report?
A. 1510 square feet under painting at 6 cents, total $91.
Q. Then under painting we have 549 square feet, multiplied by two. How does that appear on page 25 of your report?
A. 549 square feet, multiplied by two, 6 cents, total $66.
Q. Now, to stop for a moment; how does that happen to be put in that way; because there happen to be two areas opposite each other corresponding in size?
—. ——.
Q. Then we have the final item on page 38 under painting, 8444 square feet. Where does that appear in your report?
A. Under painting 8444 square feet, 2 cents, total $169.
Q. Why is a part of it two cents and a part of it six cents.
A. It is not the same kind of painting.
Q. What is the difference, do you remember?
812 A. I don't remember the detail; I knew it at the time.
Q. Have you that information—you need not look for it here; have you it here in Des Moines?
A. It can be obtained, yes.

Q. The next item on the inventory, page 38, the last one is photometer room. That is the room where they keep this apparatus for testing the candle power?

A. Yes, sir.

Mr. BYERS: I would suggest that you are doing too much testifying; let the witness do it.

Q. Please describe this room in your own way?

The MASTER: It was described. I remember that distinctly.

Q. Tell what it is, the photometer room?

A. The photometer room is really a portion of the office which has been boarded off for the covering up of the phonometer itself, which has to be operated in a dark room. There are three wooden walls and a brick wall of the building, comprising four walls of this photometer room, and a little frame cover over the top of it with a door leading into it. It is one inch stuff in there; its only purpose is to keep the draft and light away from the standard.

The MASTER: The photometer room, as I understand it, is for the purpose of testing the candle power of the gas?

A. That is all it is for.

Q. The first item appearing at the bottom of page 38 of the inventory, under photometer room, is 223 square feet; that you have how on page 25 of your report?

A. Under photometer room 283 feet B. M. $41. total $12.

Q. Then the next item here in the inventory under photometer room is studding, 112 feet B. M. on top of page 39. Do you
813 have that?

A. That is not in my report.

Q. So that you run over 60 feet of board measure and you have omitted 112 board measure of studding?

A. Yes, sir.

Q. And that is because the memorandum furnished you was over and made this omission?

A. Yes, sir.

Mr. BYERS: Mr. Guernsey you are testifying. That is one thing I am objecting to.

Mr. GUERNSEY: If the witness had not been testifying to this four or five time-, I would not ask leading questions.

Q. Now, then, I wish you would turn to page 39 of the inventory and tell us what you find there as to the item following this studding?

A. Door panel, 16 square feet.

Q. If that item appears on page 25 of your report, will you please point it out there?

A. That appears under photometer room, batten door, 16 square feet 15 cents, total $2.

Q. Will you please turn again to page 39 of the inventory and tell us what is the next item there?

A. Painting, 239 times two, equals 478 square feet.

Q. Will you please state where this item appears on page 25 of your report, Exhibit 20, if it appears there?

A. Under photometer room as painting, 477 square feet, at nine cents, total $43.

Q. Now, will you please again refer back to the inventory and compare the number of feet stated in the inventory with the number of feet stated as to this same item in your report and state
814 whether or not there is any discrepancy and if so, how much?

Mr. Byers: This is objected to for the reason that it is simply asking the witness to state what appears upon the record and what is found in the two exhibits. All of this examination is simply having the witness read the items and compare them with what appears on the other book; it is simply a pure waste of time. And the same objection is made to the other way of doing it; it is a waste of time.

A. The inventory shows 478 square feet of painting. My report shows 477 square feet, one foot less than the inventory.

Q. How does it happen that there is that discrepancy between your report and the inventory?

A. My report was made from the data furnished me some time ago, and the 477 agrees with what was given me at that time.

Q. Now, turn to the next item at page 39 of the inventory, the heading is what?

A. Tool room.

Q. What is the first quantity given there?

A. 66 square feet.

Q. Following that is what item on the inventory?

A. Studding, 42 feet B. M.

Q. State whether or not those two items are grouped together in your report, if so, how they appear there at page 25?

A. These two items appear together in my report under the heading tool room as 108 feet B. M. $41. total $4.

Q. What is the next item on page 39 of the inventory?

A. Door, batten, 16 square feet.

Q. How does that appear on page 25 of your report?

A. Batten door, 16 square feet, 15 cents, $2.

Q. What is the next item on page 39 of the inventory?
815 A. Wire screen, 166 square feet.

Q. How is that item shown on page 25 of your report?

A. Wire screen, 160 square feet, 8 cents, total $13.

Q. What appears next on page 39 of the inventory?

Objected to on part of defendants for the reason that the item shows for itself what it is and the Master can read it just as well as the witness; and it is purely a waste of time.

A. Tool room, room A, 103 square feet.

Q. How does that appear on page 25 of your report.

Same objection as last above made.

A. Under the head of tool room A, 116 feet B. M. $41, total $5.
Q. What appears next at page 39 of the inventory?
A. Studding 51 feet B. M.
Q. How do you estimate that in your report?
A. That has been omitted from my report.
Q. Now what is the next item that appears in the inventory?
A. Room C, 116 square feet.
Q. How does that appear in your report?
A. Room C, 145.05 feet B. M. $41. total $6.
Q. Now what is the next item that appears in the inventory?
A. Studding, 36 feet B. M.
Q. How does that appear in your report?
A. It is omitted.
Q. The next item?
A. Door, swinging, slat, one (8.47 square feet).
Q. At what amount?
A. There is no amount in the inventory. That appears in my report dorr, 8.47 square feet, 30 cents, total $3.

816 Q. Now, how do you explain these discrepancies between the inventory and your report?

A. Some of them are doubtless errors due to copying the originals. There were several copies made up and some of them are due to the difference in the scheme of calculating from the original dimensions. Some of the brick, for instance, is figured on a cubic foot basis and some is figured on the wall area.

Q. Now, these items give you what as to the net construction cost of the building which we have been considering, being the building #3, meter, exhauster and wash room?

Objected to for the reason that the item appears and can just as well be read by anyone.

A. $7,793.

Q. Now, I wish you would turn back to page 5 of your report, exhibit D, and tell us what you estimated as to the cost of this building after the addition to the amount you have just stated of the expenses on account of interest, taxes, and over-head charges, such as engineering, etc.

A. The total reproduction cost of the building #3, I estimated as $9,718.

Q. Now, what was the age of this building as shown in the column age and year.

A. Thirty-five years.

Q. And the assumed life of this building?

A. Fifty years.

Q. And the per cent condition?

Objected to on part of the defendants as being incompetent and improper examination, for the reason that this table has been fully explained by this witness, and it is just as evident to the Master and counsel, the age of the building and per cent as any other item in the total and is simply a waste of time and padding the record

817 with an expensive witness.

A. Sixty-six.

Q. Now, then, Mr. Lea, taking into account the total reproduction cost of this building, its age, the life of such buildings, and its per cent condition, what in your judgment is the present value, as you use the term in this Exhibit D of this building?

Objected to for the same reason as to the former question; the item appears in figures that are intelligible and can be easily read; this is simply having this witness take the time of this Master and counsel to read what anybody can read from his inventory and which has already been fully explained.

A. $6,414.

Q. And have you computed as to this building the depreciation annuity on a sinking fund basis?

A. Yes, sir.

Q. It is what?

Same objection as last above made.

A. $86.00.

Q. Now, returning to page 26 of your report, first referring to this historical and descriptive matter which is contained on page 26 of your report, I wish you would state to the Master whether that is substantially the matter contained on pages 43 and 44 of the inventory and what attempts if any you made to verify its correctness.

A. The description I have given of the building #4 is practically the same as appears on pages 43 and 44 of the inventory, and I have satisfied myself as to the substantial accuracy of each statement therein by personal inspection of the building.

Q. Will you please turn to Exhibit 16, sketch 19, 20, 21,
818 22, 23 and 24 and state whether or not these sketches are sketches or plans relating to this building and its contents?

A. They are.

Q. Now, then, Mr. Lea, turning to page 45 of the inventory, I find the first item there as to this building, clearing site and staking out. How does that appear and how have you estimated it on page 27 of your report Exhibit 20?

Mr. BYERS: For the purpose of the record, I inquire whether you intend to offer in evidence Exhibit 20.

Mr. GUERNSEY: After I have identified it and have shown that the items contained in it are correct, I propose to offer it.

Mr. BYERS: I object to this question then as incompetent and immaterial; simply asking this witness to read items which have already been fully identified and fully explained. It is a pure waste of time and an inexcusable padding of the record.

A. That item appears as clearing site at $20.

Q. That is the amount at which you have estimated that item?

A. Yes, sir.

Q. Now, taking the next item, excavation 205 cubic yards, please state where that appears in your report, Exhibit 20, and at what amount you estimated that?

A. It appears as excavation, 205 cubic yards at $1.10, total $226.

Q. Now, at page 45 of the inventory, the next item appearing is foundations, rubble stone, aggregating 99½ perches; how do you have that?

A. I have it as foundations, rubble stone, 2,600 cubic feet, equal 105 perches, $5.50, total $578.00.

Q. Now, I see here there is a slight discrepancy; I wish you
819 would state whether in each instance, when these discrepancies appear they are explained by what you said about those heretofore appearing?

A. Yes, sir.

Q. The next item appearing on page 45 is back filling, 63 cubic yards. Please state what you estimated that and where that appears on page 27 of your report.

A. It appears here, back filling, 63 cubic yards, 60 cents, total $38.

The MASTER: Suppose you would ask him here a general question as to these matters.

Mr. GUERNSEY: That was the course I intended to pursue until I found you were checking each item. Let me see if I understand what your honor has in mind.

The MASTER: Ask him to give an itemized valuation.

Q. Now taking the balance of the items shown in the inventory as to this building, will you please state in detail how you have estimated those items, commencing with the walls and running to the end of the building, as the results of these estimates appear in your report.

A. Under the head of walls, I have 127,715 brick at $17, total $2,171. Extra for pilasters and cornices, 8,900 brick, $4.25, total $38.

Mr. BYERS: If it is proper for me to make a suggestion, I don't think anybody here is anxious to take up unnecessary time. Of course it will take a long time for the witness to read what is in these books. It seems to me if the witness was simply asked if the figures and items appearing here in Exhibit 20 under retort, generator, engine and blower house are his valuations placed upon the items that appear in Exhibit 15——

820 Mr. GUERNSEY: That is satisfactory to us, except as there may appear some special item we might want to ask about.

The MASTER: It is a little out of the order, but I don't see why it won't work here.

Mr. BYERS: We will only examine him upon such matters as we feel there would be some change in the figures.

Q. Now, then, Mr. Lea, taking this report, Exhibit 20, at pages 27 and 28, have you estimated the net construction cost, as you use that phrase, of each item in this building as it appeared in what purported to be a copy of the inventory furnished to you and are the figures which you set down here your estimate of that cost?

A. I have covered each of the items as given me originally and all of the figures showing the valuations in this report are my own figures.

The MASTER: Are there any discrepancies between that and the inventory?

Mr. GUERNSEY: I can not tell you; but I can say this, your honor, we will go through and we will furnish a list of those discrepancies; if my recollection is correct the gross sum is something like $14.

Q. In the third line from the bottom of the page you have 6 lintels as per sketch, $20. The reference to the sketch is for what?

A. The sketch shows the *the* cutting of the lintel.

Q. Whether it is elaborate or not?

A. Yes, sir.

Q. Now, turning back, Mr. Lea to page 5 and building 4 as it appears there, I wish you would state what was your estimate of the total reproduction cost, including your net construction cost,
821 as you have stated it, and the additional items which you said must be added to it, for this building?

A. I have building #4, total reproduction cost $6,300.

Q. That is your estimate?

A. Yes, sir.

Q. What was the age of this building?

A. 35 years.

Q. And the prospective life of the building?

A. 50 years.

Q. And its per cent condition?

A. 66.

Q. What then was our estimate of the present value, as you use that term of this building?

A. $4,158.00.

Q. And what was your estimate of the amount of the depreciation annuity on a sinking fund basis which should be set aside each year on account of it?

A. $56.

Q. Turn to building 5 on page 29 of your report.

The MASTER: I see your items here are $5050 and you have here $6300.

A. The $5050 is the total cost of labor and material entering into the building; to that total you must add for casualty liability, omissions and contingencies, taxes during construction and loss of interest during construction a certain amount which brings that total up to what I show here, $6300.

Mr. BYERS: As I understand that, that is the 15 per cent you passed over here, and the other items appear over here in Exhibit J?

A. Yes, sir.

822 The MASTER: Then you add $500 for taxes and loss of interest?

A. Yes, sir.

Mr. BYERS: Then the difference is between $5300 and something and the taxes and interest?

A. Yes, sir.

Mr. BYERS: And you get at that by some process?

A. Yes, sir, that is fully shown in Exhibit J.

Q. You will first take $5050 and you would add that 15 per cent

on account of the contingent items we have spoken of; after doing that, the tax and interest through construction are computed on each amount?

A. Yes, sir.

Q. And the aggregate, including the taxes and interest during construction is the item appearing on page 5 as your total reproduction cost?

A. Yes, sir.

Q. Now, turning to page 29 of Exhibit 20, building 5, please state whether or not the historical and descriptive matter there shown was adopted by you from page 53 of the inventory after such verification of its statements as you were able to give it?

A. It was so taken.

Q. Now, turning again to Exhibit 16 and looking at sketch 25 and 26; I will ask you whether these sketches, 25 and 26, refer to the building now under consideration?

A. They do.

Q. Now this building is called coal shed, scrubber and condenser room. What part of the process of manufacturing gas is carried on in this room?

A. In one portion of this roo mare located the scrubbers
823 and con*con*densers and two 6 foot 6 water gas sets; the balance of the room is the coal shed proper.

Q. What is the fact as to whether this scrubbing process is carried on in the apparatus that you describe as having wood or stone or something in it and the water running through it?

A. Yes, sir; the same thing.

Q. I will call your attention to plate 3 in the inventory, exhibit 16, state whether the building on the left of the figures 1876 appearing in front of it is the building to which you refer?

A. The building is the lean-to of that building.

Q. On the left hand side?

A. Yes, sir.

Q. Now, Mr. Lea, returning to your report, I wish you would state whether or page 30 of this report you have set out by items your estimate of what you have defined as the net construction cost of this building, covering the items involved in its construction as they appeared on the inventory?

A. I have.

Q. And your gross estimate or your estimate of the gross amount of this net construction cost is what?

A. $3,009.00.

Q. Now turning back to page 5 of Exhibit D, what is your estimate of the total reproduction cost of this building, #5, including in addition to the net construction cost all incidental items that you refer to, taxes and interest lost during construction?

A. $3,754.00.

Q. What is the age of this building?

A. 35 years.

Q. And the assumed life of this building?

A. 50 years.

824 Q. The per cent condition of this building?
A. Sixty-six.
Q. And what is your estimate of what you designate as its present value?
A. $2,478.00.
Q. And what amount would it be necessary to set aside on account of the depreciation annuity on sinking fund basis for this building?
A. $33.00.
Q. Each year?
A. Each year; that is an annuity.
Q. Turn to page 31 of your Exhibit 20, and also please refer to page 59 of Exhibit 15 and state whether or not the discriptive matter which you show upon page 31 was adopted from page 59 in Exhibit 15, after such verification as you were able to give it?
A. Building #6 A and B, yes sir. My description is practically the description give- and has been verified by me.
Q. Turning to Exhibit 16, I wish you would state whether sketches #28, #29, #30, #31, #32, #33 and #34 relate to this building?
A. Yes, sir, they do.
Q. Now, then I wish you would turn to the photograph which appears as plate 17 and state whether or not that is a photograph of this building, Mr. Lea?
A. Yes.
Q. Now, then, Mr. Lea, please turn to page 32 and state whether or not the items shown on this page are your estimate of the net construction cost of the various items shown as to this building on pages 60 and the following pages of the inventory, Exhibit 15, not including the apparatus or the foundation for the apparatus, or
825 what pertains to the apparatus.
A. Yes, sir; they are.
Q. In order to make this a little more definite, will you state whether or not the items you refer-ed to end on and including page 72 of the inventory?
A. No, sir; the items I have covered in my total net construction cost of building A and B, end at the bottom of page 65 of the inventory.
Q. Now, then, what was your estimate, aggregate, of the net construction cost of this building?
A. $6,853.00.
Q. Turning back now to page 5 of your Exhibit 20, please state what your estimate of the total reproduction cost of this building is?
A. $8,550.00.
Q. What is the age of this building?
A. Nine years.
Q. Its assumed life?
A. Fifty years?
Q. And its per cent condition?
A. Seventy-eight.
Q. Taking these matters into account, what is your estimate as to

the present value of this building, as you use that designation in this report?

A. $6,669.00.

Q. And what in your judgment is the depreciation annuity on a sinking fund basis, which should be set aside on account of this building.

A. $76.00.

826 Q. Turning to page 33 of your report, Mr. Lea, and also to page 68 of Exhibit 15, please state whether or not the descriptive matter shown by you on page 33 was adopted by you from the page referred to in the inventory, after such verification as you were able to give it?

A. It was.

Q. Now, then, referring to page 34 of your report, I wish you would state whether or not the items there set out, are the items showing your estimate of the net construction cost of the various items with reference to this building designated as 6-C boiler house extension, set out on pages 69 and 70 of Exhibit 15.

A. Yes, sir, they are.

Q. Does it also include what is set out on pages 71 and 72 of Exhibit 15?

A. It includes all items covering the building which run over to 71 and 72.

Q. What did you estimate the aggregate net construction cost of this building?

A. $1,354.00.

Q. Turning again to page 5 where this building is designated as 6-C, will you please state what you estimated as the total reproduction cost of this building?

A. $1,689.00.

Q. What was the age of the building?

A. Three years.

Q. What the assumed life of the building?

A. Forty years.

Q. I notice that is less than some of the other buildings?

A. It is a different type of construction.

Q. What is the present per cent condition?

A. Ninety-eight.

827 Q. Now, state what your estimate was, taking these factors into account of the present value, as you use that term, of this building 6-C?

A. $1,655.00.

Q. Will you please state what the depreciation annuity on a sinking fund basis is on account of this building?

A. $22.00.

Q. State whether or not sketch 33 and 34 are sketches which refer to this building—I mean of course sketches of that number in Exhibit 16?

A. They are.

Q. Now then the next building which you took up, as I understand your report, is the generator house, building #7, page 35;

now Mr. Lea, referring to page 35 of your report and to the historical descriptive matter that is there contained and also referring to page 74 of Exhibit 15, I wish you would state whether or not the descriptive matter on page 35 of your report is adopted by you from page 74 of Exhibit 15, with such verification as you have been able to give it?

A. The descriptive matter I have in my report is taken from the descriptive matter on pages 74 and 75 of Exhibit 15, with personal verification in a general way.

Q. I wish you would turn to Exhibit 16 and state whether or not the drawings indicated there as sketches 35, 36, 37 and 38 refer to this building we have just been mentioning and designate the generator house building #7?

A. Yes, sir, they do.

Q. I show you these photographs which are marked plates 11 and 12, in Exhibit 16, and ask you whether or not they are photographs of this building now under consideration?

828 A. They are.

Q. You have got here in your description metal louvres, what are they?

A. Ventilator on the top of the roof.

Q. Now, I wish you would turn to pages 79 and 82, inclusive, of Exhibit 15, and would state whether or not the estimate set out on pages 36 and 37 of your report, Exhibit 20, is a detailed estimate, itemized as shown, of the various items entering into the construction of this building shown by the pages I just referred to in Exhibit 15?

A. The items I have shown correspond with those on pages 76.

Q. Did I get the wrong page?

A. Yes, sir.

Q. 76 to what inclusive?

A. To 82 inclusive. And my total net construction cost is $15,336.

Q. That is your estimate of the total net construction cost of that building?

A. Yes, sir.

Q. Turn back to page 5 of this report, will you please state your estimate of the total reproduction cost of this building #7?

A. $19,131.00.

Q. What is the age of this building?

A. Two years.

Q. What is the assumed life of this building?

A. Fifty years.

Q. And its per cent condition?

A. Ninety-nine per cent.

Q. Taking these factors into account, and any other factors that are material, what is your judgment as to the present value of this building?

829 A. $18,940.00.

Mr. Byers: In these questions you assume all this; those are the figures that appear there.

Mr. Guernsey: I suppose he is going to say this; I have to verify these figures as his estimate.

Mr. BYERS: I was just wondering if you asked him this as independent testimony.

Mr. GUERNSEY: Of course this is simply verifying it. He would have to have a memorandum. He couldn't carry those figures in his mind.

Q. Now, then, what is the depreciation annuity on a sinking fund basis for this building?

A. $170.00.

Q. Will you turn now to the next building on page 38 of Exhibit 20, have you lumped these two buildings?

A. No, sir; except in the descriptive matter.

Q. Take first then the coal shed building 8–A and your descriptive matter as to that; where did you get it and what did you do in the way of verifying it?

A. The descriptive matter I have given for building 8–A is practically the same as appears in the inventory on page 84, and has been checked by my personal inspection of the building.

Q. Covering this same matter now in connection with building 8–B did you obtain the descriptive matter as to that as it appears on page 38 of your report in the same manner?

A. In the same manner, but the descriptive matter of 8–B is on page 88.

Q. Referring to Exhibit 16 I will ask you to state whether the sketch 39 is a sketch of Building 8–A and the sketch #40 of building 8–*b*?

A. The sketch #39 shows the plan and elevation of build-
830 ing 8–A; #40 shows the plan and elevation of building 8–B.

Q. Now turning to page 39 of your report I wish you would state whether that page contains your estimate of the net construction cost of the various items entering into this building 8–A as they appear on pages 85 and 86 of the inventory Exhibit 15?

A. Those items are shown in my report.

Q. And what is your estimate of the total net construction cost of this building?

A. $6,974.00.

Q. Turning now again to page 5 of building 8–A, what is your estimate of the total reproduction cost of this building?

A. $8,700.00.

Q. What is the age of the building?

A. Fifteen years.

Q. What is the assumed life of the building?

A. Twenty years.

Q. And what is the per cent condition of the building?

A. Thirty-four.

Q. What in your opinion is the present value of this building?

A. $2,958.00.

Q. And what amount is the depreciation annuity on the sinking fund basis on account of this building?

A. $308.00.

Q. Now, digressing for a moment, to avoid any possible misun-

derstanding—in this total, the assumed life includes the total life what has already elapsed as well as the future?

A. The assumed life is the total average life of buildings of that character.

Q. In other words it is not the life you assumed for the future?

A. No, sir.

831 Q. Now, turning to this next building, run-way and coal shed, building 8–B, at page 40 of your report, and turning also to pages 89 and 90 of Exhibit 15, please state whether upon page 40 you have shown your estimate in detail of the net construction cost of the various items as shown on the said pages, 89 and 90, going into this building?

A. I have.

Q. And what is the total cost of this building as estimated by you and shown on page 40?

A. $440.00, the net construction cost.

Q. Turning now to page 5 and to this same building, 8–B, please state what in your judgment the total reproduction cost of this building is?

A. $549.00.

Q. What is its age?

A. Ten years.

Q. The assumed life?

A. Twenty years.

Q. The per cent condition?

A. Sixty.

Q. And what in your judgment is its present value?

A. $329.00.

Q. What is the amount of the depreciation annuity on a sinking fund basis on account of this building?

A. Nineteen dollars.

Q. Now, referring to this photograph, plate 13, can you point out this structure on this photograph?

A. This coal shed and this run-way.

Q. This run-way between the coal shed and the other building, the generator.

832 A. Yes, sir; #7 generator house.

Q. Now, the next building we take up here is building #10, the smith and carpenter shops and store room, page 41 of your report. Where did you obtain the descriptive matter and to what extent did you verify it?

A. It was obtained from pages 92 and 93 of the inventory and verified by my personal examination of the building as to its substantial accuracy.

Q. Now, referring to volume two of the inventory, Exhibit 16, I wish you would state whether sketches 41, 42, 43, and 44 relate to this same building #10?

A. They do.

Q. And turning to the same volume of the inventory, please state whether the photograph indicated as plates 5 and 6 show this building?

A. Yes, sir they do.

Q. Now, referring to pages 42 and 43 of your report, Exhibit 20, I wish you would state whether those pages contain your estimate by items of the various matters going into this building #10, commencing with page 94 of the inventory, Exhibit 15, and continuing to and including page 102 of Exhibit 15?

A. My report covers the items mentioned.

Q. Now, in running down page 42 I see one item at least that is not very clear to me—fire, Und. Standard.

A. That means fire underwriters standard type of building.

Q. Then there are some fire doors in the building?

A. Yes, sir.

Q. What in your judgment is the total net construction cost of this building?

A. $8,221.00.

833 Q. Turning back to page 5, building 10, please state what in your judgment the total reproduction cost of this building is?

A. $10,255.00.

Q. What is the age of the building?

A. Thirty-five years.

Q. The assumed life?

A. Fifty years.

Q. Its per cent condition?

A. Sixty-six.

Q. Considering these matters, in making your estimate, what is the present value of this building?

A. $6,768.00.

Q. And what is the depreciation annuity on a sinking fund basis on account of this building?

A. $91.00.

At this time, 11:15 A. M. an adjournment was taken until 9:30 A. M., July 25th, 1911.

834 Tuesday Forenoon Session.

JULY 25, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

HENRY I. LEA, re-called on part of complainant for further direct examination, examined by N. T. Guernsey, Esq., testified as follows:

Q. Now, Mr. Lea, turn to page 44 of your report, this building is shown by sketch 45 in Exhibit 16, is it not?

A. Yes, sir.

Q. And the descriptive matter you took from page 104 of Exhibit 15, after verification by yourself, as far as you can verify it?

A. Yes, sir.

Q. Now, then, on page 45, please state whether or not you show on your estimate of what you call net construction cost of this building all items and the aggregate and what the aggregate is?

A. The items are shown and the aggregate is $210.

Q. Now I wish you would look again at Exhibit 16 and see whether plate 19 is a picture of this little building?

A. Yes, sir.

Q. Now, turning to page 5, under Exhibit D, you have the total reproduction cost of this building estimated, have you not, at how much?

A. $263.00.

Q. And its age is what?

A. Two years.

Q. And its life?

A. Fifty years.

Q. And the per cent condition?

835 A. Ninety-eight.

Q. And what do you call the present value?

A. $258.

Q. And what is the depreciation annuity on a sinking fund basis?

A. Two dollars.

Q. Now, turning to page 46 of your inventory, I will ask you whether sketch 46 in Exhibit 16 is the sketch showing this building?

A. It is.

Q. Turning now to photographs indicated by plates 9 and 10 in Exhibit 16, please state whether or not the building referred to is the brick building that appears in the foreground in plate 9 and in front of the holder in plate 10?

A. This building does so appear.

Q. Referring to page 107 of Exhibit 15, please state whether or not the descriptive matter which appears on page 46 of your Exhibit 20 is adopted by you from Exhibit 15 after such verification as you were able to give it?

A. It is.

Q. Now, turning to page 47 of your report Exhibit 20, Mr. Lea, please state whether or not upon this page there appears the detailed estimate of the net construction cost of this building number 12, and also the aggregate, and what in your judgment this net construction cost is.

A. The detailed estimates do appear in my report and my estimate is $880. of this building.

Q. This $880. is your net construction cost, your estimate of what that would be?

A. Yes, sir.

Q. Turning back again to page 5, Mr. Lea, #12, what in your opinion is the total reproduction cost of this building?

836 A. $1,098.

Q. What is its age?

A. One year.

Q. And its life?

A. Fifty years.

Q. And its per cent condition?

A. Ninety-nine.

Q. And its present value?
A. $1,087.00.
Q. What is the depreciation annuity on a sinking fund basis?
A. Ten dollars.
Q. Now turning to page 48 of your report, we have oil pump house building 13; I will ask you whether sketch 47 in Exhibit 16 shows this house?
A. It does.
Q. Now will you turn to plate 20 and state whether or not this is the brick building that appears just to the left of the oil tanks there?
A. Yes, sir; it is.
Q. And referring to Exhibit 15 at page 112, please state whether or not the description which you show at page 48 is adopted from this page of Exhibit 15, with the verification you have been able to give to it?
A. It is.
Q. Turning to page 49 of your report, Exhibit 20, please state whether your estimate of the net construction cost of this building, #13, is as to the items and aggregate as shown on that page, and what the aggregate is?
A. The items are shown on that page and the aggregate is $229.00.
Q. Now, referring to page 5 of your report, please state
837 what in your judgment the total reproduction cost of this building #13 is?
A. $285.00.
Q. What is its age?
A. Four years.
Q. And its assumed life?
A. Fifty years.
Q. Its per cent condition?
A. Ninety-six.
Q. And its present value?
A. $274.00.
Q. The depreciation annuity on a sinking fund basis?
A. Three dollars.
Q. Now referring to page 50 of your report, I wish you would state whether sketches 48, 49 and 50 in Exhibit 16 relate to the meter house, building #14, referred to on the page of your report just mentioned?
A. They do.
Q. Now will you look at plate 23 in Exhibit 16 and state whether or not that is a photograph of this building?
A. It is.
Q. This is called a meter house; is this for the storage of ordinary meters or for some special meter, if so, what?
A. This building is only for the purpose of housing the large meter through which all the gas or the major portion of the gas supplying the city may be passed; the large station meter through which we register the amount of gas sent through the streets, is in this building.
The MASTER: It send- the gas to the city?

A. Yes, sir; it is fourteen feet in diameter.

Q. This building, as I understood somebody the other day,
838 the meter practically fills this building?

A. Yes, sir.

Q. Now, I wish you would refer to page 116 of Exhibit 15 in the inventory and state whether or not the description which you have on page 50 of your report, Exhibit 20, is adopted from this page 116, and whether you have verified it so far as you have been able to do so?

A. I have verified the description and have adopted it from Exhibit 15 practically as given.

Q. Now, please state, Mr. Lea, whether page 51 of your report, Exhibit 20, sets out your estimate of the net construction cost of this building #14, giving it by items and also the aggregate?

A. My report does show the items and the aggregate. The aggregate is $1,576.00, the net construction cost of building number 14.

Q. Turning to page 5 of your report, please state what is the total reproduction cost of this building in your judgment, being building number 14.

A. $1,966.00.

Q. What is its age?

A. Two years.

Q. And its life?

A. Fifty years.

Q. And its per cent condition?

A. Ninety-eight.

Q. And the present value?

A. $1,927.00.

Q. What is the depreciation annuity on a sinking fund basis?

A. Seven dollars.

Q. Turning to page 52 of your report, please state whether
839 sketches 51 and 52 in Exhibit 16 relate to this building?

A. They do.

Q. Also state whether the photograph plate 24, shows this building in the foreground?

A. It does, yes sir.

Q. Now, referring to Exhibit 15, page 121, please state whether or not the description shown at page 52 of your report has been adopted from this page 121 with such verification as you have been able to give it?

A. It is.

Q. Now, taking page 53 of your report, Exhibit 20, please state whether that shows your estimate of the net construction cost of this building, number 15, the stable?

A. It does.

Q. By items and the aggregate?

A. It shows it by items; and the aggregate is $2,266.

Q. Now, turning to page 5 of your report, building 15, please state the total reproduction cost of this building?

A. $2,827.

Q. What is its age?
A. Twenty years.
Q. The assumed life?
A. Twenty years.
Q. Its per cent condition?
A. Twenty-five.
Q. Its present value?
A. $707.
Q. What is the depreciation annuity on a sinking fund basis?
A. One hundred dollars.

Q. Now, referring to the next building mentioned in your
840 report page 54, boiler house building number 16, refers to this building?

A. They do.
Q. State whether or not the photograph plate 27 in Exhibit 16 also shows this building?
A. Yes, it does.
Q. Now, referring again to page 54 of your report, please state whether the descriptive matter there set out is adopted by you from page 126 of Exhibit 15, and whether it was verified by you so far as you were able to verify it?
A. My description was adopted from the inventory and was verified by me.
Q. Now, referring to page 55 of your report, please state whether or not that contains your estimate of the net construction cost of this boiler house building #16.
A. It does.
Q. By items and the aggregate?
A. It does. The aggregate is $983.
Q. Turning back now to page 5 of your report, please state the total reproduction cost of this building, what in your judgment is the total reproduction cost?
A. $1,226.
Q. And its age?
A. Five years.
Q. Its life?
A. Thirty years.
Q. And its per cent condition?
A. Ninety.
Q. Its present value?
A. $1,104.

Q. Its depreciation annuity on a sinking fund basis?
841 A. Twenty-six dollars.

Q. Turn to page 56 of your report, please state whether sketch 55 of Exhibit 16 is a sketch showing this building #17, fire brick storage?
A. It is.
Q. Please state whether or not your description on this page is adopted from page 130 of the inventory with such verification as you have been able to give it?
A. It is.

Q. Please state whether or not page 57 of your report Exhibit 20 is an estimate in detail of the aggregate and your estimate in detail and aggregate of the net construction cost of this fire brick storage house, building 17?

A. It is.

Q. What is the aggregate amount?

A. The aggregate is $132.

Q. Turning to page 5 of your report, please state what in your judgment is the total reproduction cost of this building #17?

A. $164.

Q. And its age?

A. Six years.

Q. Its life?

A. Twenty years.

Q. Its per cent condition?

A. Seventy-nine per cent.

Q. And its present value?

A. $120.

Q. And the depreciation annuity on a sinking fund basis?

A. Six dollars.

Q. Turning to page 58 of your report, fire hose building,
842 please state whether sketch 60 in Exhibit 16 refers to this building?

A. It does.

Q. Also please state whether the descriptive matter which you have there is adopted by you from page 132 of Exhibit 15 with such verification as you have been able to give it?

A. It is.

Q. Please state whether page 59 of your report is your estimate of the next construction cost of this building, in detail and in the aggregate and what that aggregate is?

A. That is my estimate; the aggregate is $34.

Q. Turning back to page 5 of your report, what is the total net reproduction cost of this building?

A. $42.

Q. Its age?

A. Six years.

Q. Its life?

A. Twenty years.

Q. Its per cent condition?

A. Seventy-nine per cent.

Q. Its present value?

A. $33.

Q. Its depreciation annuity on a sinking fund basis?

A. Two dollars.

Q. Now turning to page 60 of your report—coke shed, building 53, please state whether sketch 65 in Exhibit 16 is of this building?

A. It is.

Q. Also please state whether the descriptive matter found on page 60 of your report is adopted by you from page 134 of Exhibit 15, with such verification as you were able to give it?

A. It is.

843 Q. Also please state whether page 61 of your report is your estimate and detailed aggregate of the net construction cost of this building and what that aggregate is?

A. This is my estimate, and the aggregate is $584.

Q. Turning now to page 5 of your report, please state the total reproduction cost of this building #53, in your judgment?

A. $729.

Q. And its age?

A. Twenty four years.

Q. Its assumed life?

A. Twenty years.

Q. Its per cent condition?

A. Twenty five.

Q. Its present value?

A. $182.

Q. The depreciation annuity on a sinking fun- basis?

A. $26.

Q. Now, I see this building apparently, by your report has been dead four years?

A. It has actually lived four years longer than the average life of that type of building, but it has been ruled that any building or machine in use has a minimum service value of about twenty-five per cent.

Q. Now, the next thing on page 62 of your report is coke rack building 54; please state whether sketch 56 in Exhibit 16 relates to this building?

A. It does.

Q. Referring to the descriptive matter which you have here, please state whether or not it is adopted by you from page 154 of Exhibit 15 with such verification as you have been able to give it?

844 A. It is.

Q. State whether or not page 63 of your report Exhibit 20, shows your estimate of the cost of this building in detail and in the aggregate and what that aggregate is?

A. This is my estimate of the net construction cost in detail and aggregate. The aggregate is $74.

Q. Now, turning to page 5, what in your judgment is the total reproduction cost of this building, #54?

A. Ninety-two dollars.

Q. And its age?

A. Four years.

Q. Its assumed life?

A. Twenty years.

Q. Its per cent condition?

A. Eighty-seven.

Q. Its present value?

A. $80.

Q. Its depreciation annuity on a sinking fund basis?

A. Three dollars.

Q. Now, passing to page 63½ of your inventory—oil barrel store

house, building 55; please state whether sketch 122 of Exhibit 16 relates to this house?

A. It does.

Q. Also please state whether your descriptive matter on page 63½ is adopted by you from the description of this same building as it appears on page 195 of Exhibit 15 with such verification as you have been able to give it?

A. It is.

Q. Turning to page 64 of your report, Exhibit 20; please state whether this page contains in detail and in the aggregate
845 your estimate of the net construction cost of this building #55?

A. It does.

Q. What is that aggregate?

A. Ninety-four dollars.

Q. What is the total reproduction cost in your judgment of this building and as shown on page 5 of your report Exhibit 20?

A. The total reproduction cost is $117.

Q. And the age?

A. Five years.

Q. Its life?

A. Twenty years.

Q. Its per cent condition?

A. Eighty-one.

Q. Its present value?

A. Ninety-five dollars.

Q. Its depreciation annuity on a sinking fund basis?

A. Four dollars.

Q. The next item in your report is on page 65, Des Moines Gas office; now that descriptive matter you obtained where?

A. In general from the description given in the inventory and from an examination of the office itself.

Q. Now, on page 66 of your report you have what, as to the west side office?

A. I have an estimate in total of the fixtures and fittings of the office.

Q. How is that estimate made?

A. That was arrived at through approximately finding the total of the various contracts concerned in the refitting of this office.

Q. And it was based then upon the cost as ascertained from these contracts?

846 A. Yes, sir.

Q. What have you as the total reproduction cost for this item on page 5 of your inventory?

A. $17,464.00.

Q. What is its age?

A. One year.

Q. Its assumed life?

A. Twenty years.

Q. Its per cent condition?

A. Ninety-seven per cent.

Q. Its present value?
A. $16,940.
Q. Its depreciation annuity on a sinking fund basis?
A. $618.00.
The MASTER: What item is that on page 67?
Mr. GUERNSEY: It is on page 66, that $14,000 on his report.
Q. This inventory of office furniture and fixtures involved here is found on page 239 to 243, except the last few lines of page 243.
A. That detail was not in the copy of the inventory supplied to me; and there is a good deal of material in the detailed list which I have not considered in my report.
Q. Not included in your report?
A. Not included in my figures.
Q. Turning to Exhibit 16, sketches 118, 119, 120 and 121, all refer to this office and the fixtures, do they not?
A. Yes, sir.
Q. Now, returning to Exhibit D to your report, Exhibit 20, I find that under your total reproduction cost you have for buildings $106,934. State whether or not that is where you obtained
847 the same item in your letter of June 24, 1911, preceding this report, which summarizes the buildings and the reproduction cost—$106,934.
A. The reproduction cost given under the head of building on the first page, or the letter to my report is taken from this summary of physical equipment.
Q. Following this item, on the same line, buildings, present value, $82,445.
A. That appeared in the letter, and in my report is also taken from this Exhibit D, summary of physical equipment.
Q. This $82,445 which appears in the letter, is the footing of the column of the present value of the buildings in Exhibit D, page 5 of your report?
A. Yes, sir.
Q. Now, you next take up what in your report?
A. Works equipment.
Q. Now, turning to page 67—in the first place, do you treat works equipment in the same way you treat buildings, by ascertaining first the net construction cost and then the total cost of reproduction, and then depreciation and present value, etc.
A. Yes, sir. But they are not treated in the same detail, because works equipment is composed of machinery which is ordinarily bought from contractors in lump figures. You do not buy a pulley and a shaft and make a machine. You buy a machine as a whole, instead of buying different parts through different parties.
Q. In buying a machine you do not buy the parts erecting the machine?
A. Yes, sir. So the figures given are the contractors figures you would expect to find in Des Moines at this time.
Q. Turn to page 67 of your report, I find first, building 1, A and

B and under that certain machinery or apparatus or equip-
848 ment, to use your word, specified; then I find building 3 with apparatus specified. Now, please state generally, Mr. Lea, whether in making this estimate of the net construction cost of the works equipment you have included under the heading of each building the equipment in that building?

A. I have, together with the foundations for the equipment in that building.

Q. I was going to ask you whether you also included what was incidental to the equipment, such as foundations and perhaps other matters?

A. I have.

Q. Now, then, referring to building one, A and B, you have first what?

A. One steam hydraulic elevator, 8 feet by 8 feet, platform, installed in 1893, net construction cost $29.

Q. In the first place can you tell us, where with reference to this building we shall find in Exhibit 15 of the inventory a description of the contents of the building?

A. You will find it immediately following the description of the building in Exhibit 15.

Mr. GUERNSEY: Does your honor care to have me check back in Exhibit 15?

The MASTER: No.

Q. You will find this, if you turn to building 1, A-B, Exhibit 15, page 25, we first have the building itself. Then commencing at page 25, right after the building, you will find a heading, Contents Purifying House, Building 1, A-B, apparatus, steam hydraulic elevator, etc., and then the piping, and that is arranged, as I understand it, Mr. Lea, in this same manner throughout the inventory?

A. I have the same items as appear in the inventory, practically the same as those excepting in the details; but I have not the
849 same arrangement in my report.

Q. I mean the arrangement in the inventory is to follow each building by the apparatus or equipment of the building?

A. Yes, sir.

Q. Now, that steam hydraulic elevator, what is that for?

A. That is for lifting buggies of oxide to the charging floor of the purifying house.

Q. Now, did you carry that item over to Exhibit D?

A. Yes, sir.

Q. On page 5, what did you make the total reproduction cost?

A. $352.

Q. What the age?

A. Eighteen years.

Q. The assumed life?

A. Thirty years.

Q. The per cent condition?

A. Fifty-two.

Q. The present value?

A. $183.

Q. Depreciation annuity on a sinking fund basis?
A. Seven dollars.
Q. Now, your next item here is 4 cast iron purifying boxes, 7 feet by 20 feet by 20 feet; these are the boxes which you have already described?
A. Yes, sir; the purifying boxes.
Q. What in your judgment is their net construction cost?
A. $19,600.
Q. Turning to page 6 of your Exhibit 20, the first item on that page please state the total reproduction cost of those boxes?
A. $23,784.
850 Q. What is their age?
A. Six years.
Q. The assumed life?
A. Thirty years.
Q. The per cent condition?
A. Eighty-seven.
Q. The present value?
A. $20,692.
Q. The depreciation annuity on a sinking fund basis?
A. Five hundred dollars.
Q. Your next item is what?
A. One Link Belt Engineering Company oxide conveyor and 5 inch and 6 inch vertical engine installed in 1905, net construction cost $1050.
Q. What is that thing?
A. That is a little conveyor made of a pair of chains carrying steel buckets which dip down into a boot, sort of surface floor, into which you dump your oxide, and carry it overhead into the spout that delivers it to the purifying boxes, and the engine drives the chain carrying the buckets.
Q. Now, what in your judgment is the total reproduction cost of this as shown by your report?
A. The total reproduction cost is $1,275.
Q. What is its age?
A. Six years.
Q. Its life?
A. Sixteen years.
Q. Its per cent condition?
A. Seventy.
Q. Its present value?
A. $892.
851 Q. Its depreciation annuity on a sinking fund basis.
A. $66.
The MASTER: What does C. I. Mean?
A. Cast iron.
Q. What is your next item?
A. 327 feet and 6 inches of 16 inch cast iron pipe at 4½ cents a pound, net construction cost, $1597.
Q. What is that pipe for?

A. That is the pipe required in making connections to and from these purifiers within the purifying house.

Q. Turning to page 6, please state the total reproduction cost of this item.

A. $1939.

Q. What is the age?

A. Six years.

Q. The life?

A. Fifty years.

Q. Present per cent condition?

A. Ninety-five.

Q. The present value?

A. $1842.

Q. The depreciating annuity on a sinking fund basis?

A. $17.

Q. Now that covers the apparatus in that building?

A. Yes, sir.

Q. Now, turning to the next building on page 67, building 3, I notice you have grouped items there; for instance, you group four items making $1635. Please state on what theory you done that and why you done that?

852 A. I have grouped the first four items under building #3, because they all have to do with the cost of the same foundations; they are items entering into the cost of foundations, and they would have to appear together for that reason. The following four items I have grouped together because they are all of practically the same age and they practically have the same rate of depreciation, and to reduce the amount of figuring I have classed them as one group. It does not effect the result in any way and saves a lot of time.

Q. In other words, we can take one item from page 67 over to page 6 and figure it on one item there instead of four?

A. Yes, sir.

Q. Now, Mr. Lea, stopping for a moment, I wish you would turn to the photograph, plate #4, and state whether that is a photograph of the interior of part of this building showing part of this machinery or equipment?

A. This is the interior view of building #3.

Q. Please state whether this aggregate of $1,635. shown on page 67 of your report, Exhibit 20, is your estimate of the net construction cost of the foundations, including the items which make up this aggregate?

A. It is.

Q. These are the foundations for the equipment?

A. Yes, sir; the machinery.

Q. Then that item, coming to page 6 of your report, is called what?

A. Foundations.

Q. What is the total reproduction cost of those items?

A. $1,984.

Q. What is the age?

A. Ten years.
853 Q. The life?
A. Twenty-five years.
Q. The per cent condition?
A. Sixty-nine.
Q. The present value?
A. $1,369.
Q. The depreciation annuity on a sinking fund basis?
A. Fifty-one dollars.
Q. Now please state whether or not, turning back to page 67, the $1,360, is in your judgment the net reproduction cost of the photometers there mentioned and the pentane lamp?
A. It is.
Q. What is a pantane lamp?
A. It is a special form of oil lamp, you might say that is used in standardizing means in the photometer.
Q. It is the one you referred to when you talked about this standardizing last week?
A. Yes, sir.
Q. Turning to page 6 of your report, Exhibit 20, please state under what head the total reproduction cost of this item is given?
A. Under building 3, heading photometer, etc., total reproduction cost $1,650.
Q. What is the age?
A. Eleven years.
Q. And life?
A. Fifteen years.
Q. The per cent condition?
A. Thirty-three years.
Q. The present value?
A. $545.
854 Q. The depreciation annuity on a sinking fund basis?
A. $86.
Q. Now, taking your next group item $737. please state whether that is in your judgment the net construction cost of the various pieces of apparatus or equipment that are grouped there to make this amount?
A. It is. Now this group was not made a part of the group just above it, because although those items have about the same rate of depreciation, they are all about five years younger.
Q. So that while your rate would have been the same, the age would have been different?
A. Yes, sir. I grouped together those things that have practically the same rate of depreciation and practically the same age.
Q. Now, under this head I notice the C O-2 apparatus, what is that?
A. That is an arrangement of glass tubes and bulbes for determining the carbonic acid gas in the product we are making.
Q. What need do you have for stop watches?
A. We have to use stop watches in making tests of the candle power, because one of the things we must know is the volume of gas

which passes in a given time; we must know exactly the time elapsed during the period of trial.

Q. So that you use stop watches to measure time?

A. Yes, sir.

Q. What is a wet meter?

A. A meter in which registration is effected, not through the action of any bellows, such as on the ordinary consumers' meters, but in which you use a vessel containing water; in this water it revolves, acts something like a wind mill; the gas comes in under the wings and pushes it over all the time and by the time it gets almost
855 over another wing exposes itself, and so on.

Q. What is a hydrometer?

A. A device for testing the gravity of liquids.

Q. What do you need a barometer for?

A. If you want to know the pressure of the atmosphere in making photometric tests.

Q. Your photometric tests are tests made with the photometer for the candle power?

A. Yes, sir.

Q. What is this medicine chest here?

A. That is an emergency kit having a lot of chemicals and bandages that a doctor would ordinarily carry for emergency cases; just for little accidents around the plant, burns or cuts or scalds; so that you can give a man first attention before the doctor gets there if necessary.

Q. What are the sulphide tests?

A. That is a part of the equipment used in the laboratory for making tests of the sulphur compounds in the gas.

Q. You told us what anorsat was, but I have forgotten it?

A. That is a chemical apparatus for determing the carbonic acid gas or carbon monoxide in the gas.

Q. These items you estimate here as $737, and are indicated how under building 3, page 6.

A. Pontane lamps, etc.

Q. What in your judgment is the reproduction cost of these items?

A. $895.

Q. Their age?

A. Six years.

Q. Their life?

A. Ten years.

856 Q. The per cent condition?

A. Forty-two.

Q. The present value?

A. $376.

Q. The depreciation annuity on a sinking fund basis?

A. Seventy-five dollars.

Q. Now, what is your next item?

A. One 8 foot by 8 foot Goodwin meter, Hinman drum and ten inch connections. Net construction cost $2,605.

Q. What is this meter used for?

A. To measure the gas made at the works prior to putting it into the street mains.
Q. Turning to page 6, that is itemized as an 8 foot meter.
A. Yes, sir.
Q. What is its total reproduction cost?
A. $3,161.
Q. What is its age?
A. Nine years.
Q. And assumed life?
A. Thirty years.
Q. Per cent condition?
A. Eighty.
Q. Present value?
A. $2,529.
Q. Depreciation annuity on a sinking fund basis?
A. $66.
Q. What is your next item on page 68?
A. One 8 foot by 7 foot 6 American meter. Net construction cost $2,405.

Mr. BYERS: Does your record show when the meter pre-
857 ceding this was installed?

Mr. GUERNSEY: You can get that inferentially by the age which appears as nine years on page 6.

A. No, sir. I did not get it from the inventory; I got it from inquiry at the works as to about when it was installed.
Q. So that you investigated it on your own account?
A. Yes.
Q. Now, referring again to this 8 foot by 7 foot 6 meter, how does that appear on page 6 under apparatus, building #3?
A. As seven foot, six inch meter.
Q. What is the total reproduction cost of that?
A. $2,918.
Q. Its age?
A. Six years.
Q. Its life?
A. Thirty years.
Q. The per cent condition?
A. Eighty-seven.
Q. The present value?
A. $2,539.
Q. The depreciation annuity on a sinking fund basis?
A. Sixty-one dollars.
Q. Let me ask you a question here. I noticed the present value of one of those meters is $2,529; and the other $2,539, a difference of ten dollars. There is a difference in the depreciation annuity of five dollars; one is 66 and the other 61. What makes that difference?
A. The 7 foot 6 meter, the reproduction cost is $2,918. The 8 foot meter has a reproduction cost of $3,161. The meters have the same life; consequently the depreciation annuity required

858 with a given rate of interest would have to be larger for the 8 foot meter.

Q. Your next item is what?

A. One 16 inch Conley automatic governor, 24 inch connections, installed in 1896; net construction cost $850.

Q. What is that thing?

A. That is a cylindrical cast iron shell in which is floating and inverted cup in the water seal, and that cup floats on the gas pressure as it enters the street mains, as the pressure tends to rise.

Q. I don't believe I myself understand what is meant by the cup floats on the gas pressure.

A. It floats in exactly the same sense as the moving part of a gas holder floats. Its function is to regulate the pressure of gas at its outlet.

The MASTER: It is like an inverted cup?

A. Yes, sir; if the pressure backs up against that cup it lifts a valve below.

Q. Your net construction cost is what?

A. $850.

Q. Now, then, turning to page 6, is the item 16 inch governor, building 3, a corresponding item?

A. Yes, sir.

Q. What is the total reproduction cost?

A. $1,032.

Q. What is the age?

A. Five years.

Q. Its life.

A. Fifty years.

Q. Per cent condition?

A. Eighty-three.

859 Q. Present value?

A. $857.

Q. The depreciation annuity on a sinking fund basis?

A. Nine dollars.

Q. What is your next item on page 68 of your report?

A. One 24 inch Conley Automatic Governor 24 inch connections, installed in 1903; net construction cost $1,650.

Q. Turning to page 6 is this indicated as a 24 inch governor?

A. Yes, sir.

Q. What is your total reproduction cost of that item?

A. $2,002.

Q. What is the age?

A. Eight years.

Q. What is the assumed life?

A. Fifty years.

Q. The per cent condition?

A. Ninety-two.

Q. The present value?

A. $1,842.

Q. Depreciation annuity on a sinking fund basis?

A. Seventeen dollars.

Q. Now, you have grouped some small items here with a three foot six by four foot six safety blow bag. What is that?

A. That is a sort of a seal pot placed in the basement office of the building to provide against any excessive pressure.

Q. Now, then you grouped these items for the same reason you explained before?

A. Yes, sir, that reason applies to all, wherever I group items.

Q. What is your judgment as to the net construction cost of those five items which you have grouped together?

860 A. The net construction cost is $448.

Q. Turning to page 6, how do they appear there?

A. As wash stands, etc.

Q. What is the total reproduction cost in your judgment of those items?

A. $544.

Q. The age?

A. Six years.

Q. Their life?

A. Fifteen years.

Q. The per cent condition?

A. Sixty-eight.

Q. What is the present value?

A. $370.

Q. The depreciation annuity on a sinking fund basis?

A. Five dollars.

Q. Now your next item is #8, Wilbraham W. Green Exhauster, 16 inch connections, etc.

A. Yes.

Q. What is that, what is it for?

A. That is one of the rotary pumps which draws the gas out of the relief holder and pushes it on through the purifier, motor, and into the storage holder.

Q. What in your judgment is the net construction cost of this apparatus?

A. $2,080.

Q. Turning to page 6, does that item appear as #8 exhauster?

A. Yes, sir.

Q. What is the total reproduction cost of that item in your judgment?

A. $2,524.

861 Q. What is the age?

A. Two years.

Q. Its assumed life?

A. Twenty-five years.

Q. The per cent condition?

A. Ninety-five.

Q. Present value?

A. $2,398.

Q. The depreciation annuity on a sinking fund basis?

A. Sixty-five dollars.

Q. Now, you- next item on page 68 is what?

A. One #7 Root's Exhauster, with 16 inch connections, Huntoon

governor, 40 horse power, 10 inch by 9 inch New York Safety Engine, installed 1895.

Q. That is for purposes similar to the other?

A. The same type.

Q. What in your judgment is the net construction cost of that item?

A. $1,687.

Q. Turn to page 6; does that appear as #7 exhauster there, that first item?

A. Yes, sir; the first item.

Q. What in your judgment is the total reproduction cost of that item?

A. $2,047.

Q. What is the age?

A. Sixteen years.

Q. Its life?

A. Twenty-five years.

Q. Its per cent condition?

A. Forty-nine.

Q. Its present value?

A. $1,003.

862 Q. What is the depreciation annuity on a sinking fund basis?

A. Fifty-three dollars.

Q. Now, your next item is another exhauster of exactly the same kind?

A. The same type, kind and size.

Q. And it is made a separate item why?

A. Because it is three years older.

Q. Now, then, what is the net construction cost of the second #7 Root's Exhauster?

A. The same as the first, $1,687.

Q. That appears as #7 exhauster, the second item of that designation on page 6?

A. Yes, sir.

Q. What in your judgment is its total reproduction cost?

A. $2,047.

Q. What is its age?

A. Thirteen years.

Q. Its life?

A. Twenty-five.

Q. Its per cent condition?

A. Fifty-eight.

Q. Its present value?

A. $1,187.

Q. Its depreciation annuity on a sinking fund basis?

A. Fifty-three dollars.

Q. What is your next item?

A. Two #5 Wilbraham Green High Pressure Exhausters, 10 inch connections, installed in 1906.

Q. What in your judgment is the net construction cost of this apparatus?

A. $2,020.

863 Q. Turning to page 6*m*, how does that appear?

A. #5 exhausters.

Q. And the total reproduction cost is what?

A. $2,452.

Q. What is the age?

A. Five years.

Q. Its life?

A. Twenty-five years.

Q. The per cent condition?

A. Eighty-seven.

Q. The present value?

A. $2,133.

Q. The depreciation annuity on a sinking fund basis?

A. $63.

Q. Now, what is your next item there, the last one on page 68?

A. One 3 foot 6 inch diameter by 6 foot 11 inch T. and E., 20 inch connections, installed in 1905.

Q. What in your judgment is the net construction cost of this apparatus?

A. $1,716.

Q. Turn to page 6; that appears there as what?

A. That appears as tar extractor.

Q. What is the total reproduction cost of that item?

A. $2,082.

Q. What is the age?

A. Six years.

Q. Its life?

A. Thirty years.

Q. Its per cent condition?

A. Eighty-seven.

864 Q. The present value?

$1,811.

Q. The depreciation annuity on a sinking fund basis?

A. Forty-four dollars.

Q. Now, you have a number of items here grouped, commencing with 4 foot by 2 foot work bench at the top of page 69; please state what their net construction cost is in your judgment?

A. $384.

Mr. BYERS: Let me make a suggestion. The question you put to the witness is misleading in the record unless it is cleared up; in asking the straight question, what is its net construction cost, that would indicate actual construction cost of these articles, and not his estimate of the cost of construction.

Mr. GUERNSEY: I think the record may show, wherever I asked for the net construction cost or total reproduction cost or present value, I mean the witness' estimate of those various items. It is a little shorter to say, what is the net construction cost, instead of what in your opinion is or was the net construction cost. But that may be shown here in the record. Of course we are only asking for his judgment and not for the actual cost.

The MASTER: This witness testifies from judgment and not as to the actual fact.

Mr. GUERNSEY: Yes, sir; in each instance he is giving his judgment, not the actual cost.

Q. Now, turning to the question what in your judgment is the net construction cost of the items just referred to?

A. $384.

Q. Turning to page 6, do they appear in building 3 under
865 the head of work bench, etc.?

A. Yes, sir.

Q. Now, what is the total reproduction cost in your judgment?

A. $467.

Q. What is the age?

A. Six years.

Q. The life?

A. Fifteen years.

Q. The per cent condition?

A. Sixty-eight.

Q. The present value?

A. $318.

Q. The depreciation annuity on a sinking fund basis?

A. Twenty-four dollars.

Q. Now you have, following the items just referred to, a group of three items, one being a Buffalo duplex fire pump, what is that for?

A. That is a high pressure pump used in case they require fire service.

Q. The other two items grouped here are two other pumps?

A. Yes, sir, water pumps.

Q. What is your judgment as to the net construction cost of the three items just referred to?

A. $798.

Q. Do they appear under the head of pumps, building 3, on page 6 of your report?

A. Yes, sir.

Q. What is your estimate of the total reproduction cost?

A. $969.

Q. Their age is what?

A. Fourteen years.

Q. And the life?

866 A. Twenty years.

Q. And their per cent condition?

A. Forty.

Q. And their present value?

A. $388.

Q. The depreciation annuity on a sinking fund basis?

A. $34.

Q. Now, you have a group of remaining items in this building, and they are what?

A. That is cast iron pipe forming connections to and from the machinery in this room, gas connections.

Q. And what in your judgment is the net construction cost of this pipe?
A. $3,117.
Q. That appears as the last item under building 3 on page 6 as pipe?
A. Yes, sir.
Q. What is the total reproduction cost in your judgment?
A. $3,783.
Q. And the age?
A. Ten years.
Q. And the life?
A. Fifty years.
Q. The per cent condition?
A. Ninety.
Q. And the present value?
A. $3,405.
Q. And the depreciation annuity on a sinking fund basis?
A. $31.
Q. Now, you turn to the next building #4 and what have you estimated as the net construction cost of the foundations for apparatus in that building?
867 A. $482.
Q. And that appears on page 69 of your report?
A. It appears under building #4, my pages are not numbered.
Q. How does this item appear on page 6?
A. Under building #4, foundations.
Q. What is the total reproduction cost in your judgment of that item in your report?
A. $584.
Q. And the age?
A. Twelve years.
Q. And the life?
A. Fifteen years.
Q. The per cent condition?
A. Twenty-six.
Q. The present value?
—. $152.
Q. The depreciation annuity on a sinking fund basis?
A. Thirty dollars.
Q. Now, you have a group following the item just referred to—two engines and countershaft and belting and two blowers; what are those engines used for?
A. To operate the blowers and to provide blast for the water gas sets.
Q. And the blowers are the blowers you just referred to?
A. No, they are another type of blower.
Q. What is your judgment of the net construction cost of the two engines, shafting and blowers, you grouped near the bottom of page 69.
A. $1,125.
Q. This appears on page 6 under building 4, engines, etc.?
A. Yes, sir.

868 Q. What is the total reproduction cost in your judgment of those items?
A. $1,365.
Q. What is their age?
A. Twelve years.
Q. Their life?
A. Fifteen years.
Q. Their per cent condition?
A. Twenty-six.
Q. Their present value?
A. $355.
Q. The depreciation annuity on a sinking fund basis?
A. $71.
Q. The last item on page 69 is what?
A. Two 6 foot by 6 foot by 6 foot U. G. I. water gas sets, installed in 1899; net construction cost $11,791.
Q. U. G. I. means what?
A. United Gas Improvement Company.
Q. Why did you put that in?
A. Because that is a trade name of a standard water gas set all over the world.
Q. These sets belong to that type?
A. Yes, sir.
Q. These water gas sets include what?
A. In my figure here they include the generators, carburetors, super-heaters, condensers and scrubbers. I use the term sets, not water gas plants.
Q. The sets include four machines you mentioned which you described in describing this process?
A. Yes, sir.

869 Q. Now, then, turning to page 6, these appear under the head or as the item of water gas sets building 4?
A. Yes, sir.
Q. And the total reproduction cost in your judgment is what?
A. $14,308.
Q. And the age?
A. Twelve years.
Q. Their life?
A. Thirty years.
Q. The per cent condition?
A. Seventy.
Q. The present value?
A. $10,016.
Q. The depreciation annuity on a sinking fund basis?
A. $301.
Q. Now your next item, page 70, is steam hydraulic elevator; what is that for?
A. That is for lifting coke to the charging floor of the water gas room.
Q. By charging floor you mean the floor where the coke is put into the apparatus?
A. Yes, sir.

Q. And that is above the level of the ground, decidedly?
A. Yes, sir.
Q. About how much?
A. About 13 or 14 feet from the basement floor.
Q. What do you mean by basement floor?
A. This floor is a little below yard level. It is really the ground level of this building.
Q. Is it 8 or 10 feet below the ground level?
A. No, it is about three feet.
870 Q. This coke charging buggy, what is that?
A. That is a steel cart in which you carry coke around the place.
Q. What in your judgment is the net construction cost of these two items?
A. $510.
Q. Do they appear as elevators, etc., under building 4 on page 6 of your report?
A. Yes, sir.
Q. What in your judgment is the total reproduction cost of these items?
A. $620.
Q. What is their age?
A. Six years.
Q. Their assumed life?
A. Thirty years.
Q. The per cent condition?
A. Eighty-seven.
Q. The present value?
A. $539.
Q. The depreciation annuity on a sinking fund basis?
A. $13.
Q. Now, then your next item, five half depth benches, sixes; what does that mean?
A. Six retorts for each furnace. They were installed in 1899.
Q. They are an apparatus of what kind?
A. They are settings or furnaces for the manufacture of coal gas.
Q. And they were installed when?
A. In 1899.
Q. What in your judgment is their net construction cost?
A. $10,800.
871 Q. Are they in use now?
A. No, sir.
Q. The only gas they manufacture is water gas?
A. Yes, sir.
Q. They appear under the head of benches on page 6?
A. Yes, sir; building #4.
Q. What in your judgment is their total reproduction cost?
A. $13,106.
Q. What is their age?
A. Twelve years.
Q. Their assumed life?
A. Twenty years.

Q. The per cent condition?
A. Nothing.
Q. What do you estimate their present value?
A. Nothing.
Q. The depreciation annuity?
A. No, sir.
Q. Now, that finishes building 4?
A. Yes, sir.
Q. Now, building #5, that is the coal shed, scrubber and condenser room, I believe; you have estimated a net construction cost of the foundation in your report on page 70, as what?
A. $313.
Q. And the total reproduction cost of the foundation is what?
A. $379.
Q. What is the age?
A. Twelve years.
Q. The life?
A. Thirty years.
872 Q. The per cent condition?
A. Seventy.
Q. The present value?
A. $265.
Q. The depreciation annuity on a sinking fund basis?
A. Eight dollars.
Q. What is the next item in this building?
A. One #12 R. H. switch, 140 feet straight and curved track; one 52 turn table and connections and two roller bearing top charging cars.
Q. What is that, as a matter of fact?
A. That is a little industrial railway running from the boilers out from the steam building into the coal shed and on that run some steel cars.
Q. For handling what?
A. Boiler coal.
Q. In order to handle the coal more economically?
A. Yes.
Q. What is the net construction cost of this?
A. $935.
Q. That is indicated on page 6 of your report as building 5, switches, etc.?
A. Yes, sir.
Q. What in your judgment is the total reproduction cost of that item?
A. $1,134.
Q. What is the age?
A. Six years.
Q. What is the life?
A. Twenty-five years.
Q. The per cent condition?
873 A. Eighty-four.
Q. The present value?

A. $953.
Q. The depreciation annuity on a sinking fund basis?
A. $29.
Q. Now turn to sketch 27, if you will Mr. Lea, this sketch shows the location of that track and a little sketch of the cars?
A. Yes.
Q. Now, the next building, #6, A and B, do you remember what building that is?
A. The boiler and engine room.
Q. And you have grouped the foundation items on page 70 of your report; what did you estimate the net construction cost of those items?
A. $782.
Q. Turning to page 6, these appear as what item?
A. Foundations in building 6.
Q. What in your judgment is their total reproduction cost?
A. $948.
Q. What is their age?
A. Twelve years.
Q. Their assumed life?
A. Twenty years.
Q. Their per cent condition?
A. Fifty-one.
Q. The present value?
A. $483.
Q. The depreciation annuity on a sinking fund basis?
A. $34.
The MASTER: What is your depreciation annuity figured on, on the present value?
874 A. It is figured on the reproduction value.
The MASTER: Not on the present value?
A. No; nor on the present life left; it is figured on the reproduction cost new and on the full life. One would tend to bring it up and the other bring it down; so that they are both necessary to be fair.
Q. Now, then your next item is what?
A. Two 8 foot 6 diameter by 22 feet condensers, 20 inch connections.
Q. What are condensers?
A. They are cylindrical steel shells containing a lot of cubes; their purpose is to cool the gas by causing the gas to go on one side of the tube with water on the other.
Q. That is what you described as a tubular boiler?
A. A boiler on end.
Q. What in your judgment is the net construction cost of this item?
A. $5,074.
Q. That appears as an item as condensers on page 6, building 6?
A. Yes, sir.
Q. What is the total reproduction cost of this item?
A. $6,157.

Q. What is its age?
A. Six years.
Q. The assumed life?
A. Thirty years.
Q. The per cent condition?
A. Eighty.
Q. The present value?
A. $5,357.
Q. The depreciation annuity on a sinking fund basis?
A. $129.

875 Q. Now you next have several items grouped, what are they?

A. Two 55 horse power engines, one lot lubricators, double belting, two extra heavy blowers, making a net construction cost of $3,022.

Q. On page 6 those items appear in building 6 as engines etc.?
A. Yes, sir.
Q. What do you say is the reproduction cost of those items?
A. $3,667.
Q. What is the age?
A. Eleven years?
Q. Assumed life?
A. Fifteen years.
Q. Per cent condition?
A. Thirty-three.
Q. Present value?
A. $1,210.
Q. Depreciation annuity on a sinking fund basis?
A. $190.
Q. Now you have two items grouped following this?

A. 135 feet 20 inch cast iron pipe; 32 feet 16 inch cast iron pipe. The word pipe is left out, but that would mean pipe to any gas man.

Q. Now, then, your $1,068 is what?

A. The net construction cost of the large gas pipe leading to and from the condensers in this room.

Q. Turning to page 6, that appears as the item pipe in building 6.
A. Yes, sir.
Q. What is the total reproduction cost of that pipe?
A. $1,295.
Q. Its age?

876 A. Eight years.

Q. Its life?
A. Fifty years.
Q. The per cent condition?
A. Ninety-two.
Q. The present value?
A. $1,191.
Q. The depreciation annuity on a sinking fund basis?
A. Eleven dollars.
Q. Now does this photograph plate 18, in Exhibit 16, show some

of these connections you have just been talking about in the interior view here?

A. Yes, sir; it does.

Q. Now, turn to page 71; you have grouped a number of items on the top of that page, commencing with boiler—well, they seem to be boiler stacks and feed pumps; things that pertain to the boiler?

A. Yes, sir.

Q. What in your judgment is their net construction cost?

A. $5,605.

Q. Turning now to page 6, are they represented by the last item on that page as boilers etc.?

A. Yes, sir.

Q. What in your judgment is the total reproduction cost of those items?

A. $6,801.

Q. What is their age?

A. Eleven years.

Q. Life?

A. Seventeen years.

877 Q. Per cent condition?

A. Thirty-three.

Q. Present value?

A. $2,244.

Q. Depreciation annuity on a sinking fund basis?

A. $352.

Q. Now in this first line on page 71, H. P. means horse power in connection with the boiler?

A. It does, yes sir.

Q. What does H. R. T. mean?

A. Horizontal return tubular.

Q. A class of boilers?

A. Yes, sir.

Q. The next item on that page takes up building 6, is that right?

A. Yes, sir.

Q. In that building is what?

A. Foundations for equipment in that building, net construction cost in my opinion is $227.

Q. That is boiler house extension?

A. Yes, sir.

Q. Now, taking this item you just gave its corresponding item on page 7, building C foundations?

A. Building 6 C foundation.

Q. What is the total reproduction cost in your judgment of that item?

A. $275.

Q. What is its age?

A. Six years.

Q. Its life?

A. Fifteen years.

Q. Per cent condition?

878 A. Sixty-eight.

Q. Present value?
A. $187.
Q. Depreciation annuity on a sinking fund basis?
A. $14.
Q. And the next three items are grouped—boiler stack and injector?
A. Yes, sir.
Q. What in your judgment is the net construction cost of these items?
A. $1,748.
Q. Do they appear as boilers etc., building 6 C, page 7?
A. Boiler, etc.
Q. What is the total reproduction cost of this item?
A. $2,121.
Q. The age?
A. Six years.
Q. The assumed life?
A. Fifteen years.
Q. The per cent condition?
A. Sixty-eight.
Q. The present value?
A. $1,442.
Q. The depreciation annuity on a sinking fund basis?
A. $110.
Q. Now building #7 comes next on page 71. That is the generator house I believe?
A. Yes, sir.
Q. You grouped their foundations. What in your judgment is the net construction cost?
A. $3,946.
Q. Going to page 7 you have for the total reproduction
879 cost of the foundations, what in your judgment?
A. $4,789.
Q. What is the age?
A. Nine years.
Q. Assumed life?
A. Thirty years.
Q. Per cent condition?
A. Eighty.
Q. Present value?
A. $3,831.
Q. Depreciation annuity on a sinking fund basis?
A. $101.
Q. This building, without stopping to turn to Exhibit 16, is the one we referred to with the corrugated iron, so as to provide for extensions?
A. Yes, sir.
Q. Now, you- next item is what?
A. Two 8 foot six D. S., meaning double superheater sets built in 1910.
Q. What are sets?

A. The water gas machinery itself is grouped in the generator house ordinarily; the generator, carbureter, superheater, condenser or scrubber. In this case the condenser is not a part of the set. It is in another building and treated separately.

Q. Then the next item, one 10 foot 6 D. S. low set; is a similar apparatus of larger size?

A. Yes, sir.

Q. What is the net construction cost of these two 8 foot 6 D. S. low sets?

A. $17,600.

880 Q. And 10 foot 6 D. S. low sets?

A. $16,000.

Q. What is your vapor extractor?

A. That is rather an oval shaped steel shell in which gas by sudden change of direction of flow is caused to throw out the major portion of water vapor on its way to the relief holder.

The MASTER: This is that teakettle affair?

A. It serves a good deal the same purpose. Here is your steel shell, a steel baffle plate; the outlet is up under that baffle here; the gas comes around it at a very high rate of speed and is thrown out around the baffle and it comes out at the bottom of the overflow.

The MASTER: Does that take out the tar?

A. That takes out a good deal of the tar.

Q. I did not ask you the net reproduction cost of this vapor extractor.

A. $800.

Q. You grouped those three items—under what head does that appear at page 7 in building 7?

A. Water gas sets.

Q. And what is the total reproduction cost of these three items?

A. $41,744.

Q. What is the age?

A. Two years.

Q. The assumed life?

A. Thirty years.

Q. The per cent condition?

A. Ninety-six.

Q. The present value?

A. $40,074.

Q. The depreciation annuity on a sinking fund basis?

881 A. $877. The 8 foot 6 sets were rebuilt in 1910. The 10 foot 6 were put in about a year and a half ago.

Q. Following the sets just referred to, you have grouped in one item the remaining contents of this building at the bottom of page 71 of your report. What in your judgment is that net construction cost?

A. $3,949.

Q. Does that number, lockers, etc., belong to building #7?

A. Yes, sir.

Q. What is the total reproduction cost of that group of items?

A. $4,792.

Q. What is the age?
A. Four years.
Q. The life?
A. Fifteen years.
Q. The per cent condition?
A. Seventy-nine.
Q. Present value?
A. $3,786.
Q. The depreciation annuity?
A. $248.

Q. There is something here Judge Carr called my attention to; I presume he assumed correctly that I don't know what it is—Bristol Electric Pyrometer.

A. That is a device for measuring the intensity of temperature. It is based on the fact that as you increase the temperature of certain metals you affect their resistance to the passage of the electric current. Taking two metals which have by very carefully determined analysis rhodium and platinum rhodium—taking these two
882 couplets, having two of their ends together and expose these two ends to the place in which you want to measure the temperature; the other ends are laid to the opposite of the electrical measuring instrument—resistance measuring instrument. As you increase the temperature in those two irons which are equally coupled, the degree of resistance indicates the degre of temperature.

Q. You measure the temperature in the generator or carbureter, or where?

A. You may measure it anywhere. Ordinarily you measure it about one third way down in the carbureter.

Q. And that suggests something that has occurred to me. You said they were of a very high temperature?

A. The maximum is 1,450 degrees Fahrenheit.

Q. That is heated by coal or coke?

A. In this case coke.

Q. This photograph, plate 16, shows the operating floor of this generator room; the floor you said was up above the street level?

A. Yes, sir.

Q. This will show some of those down below?

A. Yes, sir. The floor I was speaking of before was one in connection with a room having a smaller set.

Q. The set there is a smaller set and don't have to be so high to get to the top of it?

A. Yes, sir.

Q. Now, building 8-A, top of page 72, is simply a pair of platform scales; what did you estimate their net construction cost?

A. $150.

Q. That appears on page 7. The total reproduction cost is what?

A. $183.

883 Q. The age?

A. Four years.

Q. Assumed life?

A. Fifteen years.

Q. Per cent condition?
A. Seventy-nine.
Q. The present value?
—. $145.
Q. Depreciarion annuity on a sinking fund basis?
A. Nine dollars.
Q. In building 8-B which is the run-way and coke shed, you have a steam hydraulic elevator used for what purpose?
A. For lifting buggies of coke from the floor of the coke shed; it is eight or twelve feet below the yard level, to the runway which is possibly 14 or 16 feet above the yard level. The runway leads into the operating floor of the water gas room.
Q. How is that as compared with the level of this operating floor, about the same?
A. About the same.
Q. What is the net construction cost of this hydraulic elevator?
A. $1,600.
Q. Turn to page 7, this item, elevator in building 8-B, what is the total reproduction cost of that?
A. $1,942.
Q. What is the age?
A. Fifteen years.
Q. The assumed life?
A. Thirty years.
Q. The per cent condition?
A. Sixty-one.
884 Q. Present value?
A. $1,185.
Q. The depreciation annuity on a sinking fund basis?
A. $41.
Q. Now, referring to building #10, you estimate the foundation as what?
A. $14.
Q. That appears as foundation on page 7?
A. Yes, sir.
Q. What is the total reproduction cost of that item?
A. $17.
Q. What is the age?
A. Ten years.
Q. The life?
A. Fifteen years.
Q. Per cent condition?
A. Thirty-nine.
Q. The present value?
A. Seven dollars.
Q. The depreciation annuity on a sinking fund basis?
A. One dollar.
Q. Then you have next, engine and blower?
A. Yes, sir.
Q. You grouped their net construction cost as what in your judgment?

A. $200.
Q. That appears as blowers, etc., building 10 on page 7?
A. Yes, sir.
Q. What is the total reproduction cost of those items?
A. $242.
Q. What is the age?
885 A. Ten years.
Q. The life?
A. Fifteen.
Q. The per cent condition?
A. Thirty-nine.
Q. The present value?
A. Ninety-four dollars.
Q. The depreciation annuity?
A. $13.
Q. Now the remaining apparatus and equipment in that building you grouped?
A. Yes, sir.
Q. What is the net construction cost of the items so grouped as appear here on page 72?
A. $822.
Q. What is the reproduction cost of those items?
A. $997.
Q. What is the age?
A. Six years.
Q. Assumed life?
A. Fifteen years.
Q. The per cent condition?
A. Sixty-eight.
Q. Present value?
A. $678.
Q. Depreciation annuity?
A. $52.
Q. Now this building #12, this pump house, you have first grouped there four pumps?
A. Three.
886 Q. The first item is two?
A. Oh, yes, four pumps, three items.
Q. What is the net construction cost of those four pumps?
A. $990.
Q. Turning to building 12, page 7, the first item, pumps, represents the item just referred to?
A. Yes, sir; four pumps.
Q. What is the total reproduction cost of those pumps in your judgment?
A. $1,202.
Q. What is the age?
A. Two years.
Q. The assumed life?
A. Twenty years.
Q. The per cent condition?

A. Ninety-three.
Q. The present value?
A. $1,118.
Q. Depreciation annuity?
A. $32.
Q. Now you next have grouped two more pumps at the bottom of page 72; what is your net construction cost of those?
A. $210.
Q. And they are the second item of pumps in building 12?
A. Yes, sir.
Q. What is the total reproduction cost of this item?
A. $256.
Q. What is the age?
A. Ten years.
Q. The life?
A. Twenty years.
887 Q. Per cent condition?
A. Sixty.
Q. The present value?
A. $154.
Q. Depreciation annuity?
A. Nine dollars.
Q. You next have a single pump estimated by itself—Warren—what is its net construction cost?
A. $125.
Q. That appears under the item of pumps on page 7?
A. The first item of pumps.
Q. The total reproduction cost of that is what?
A. $152.
Q. Its age?
A. Twelve years.
Q. Its life?
A. Twenty years.
Q. Per cent condition?
A. Thirty-one.
Q. Present value?
—. $78.
Q. Depreciation annuity on a sinking fund basis?
A. Five dollars.
Q. The last item in this building—Davidson pump—second item, page 73, what is your estimate of the net construction cost of that.
A. $70.
Q. This same item, the last item in building 12, page 7, what is your estimate of the total reproduction cost?
A. $85.
Q. Its age?
A. Six years.
888 Q. Assumed life?
A. Twenty years.
Q. Per cent condition?
A. Seventy-eight.

Q. Present value?
A. $66.
Q. Depreciation annuity?
A. $3.
Q. Now, the next building is building 113. That is the oil pump house I believe?
A. Yes, sir.
Q. You estimate the net construction cost of the foundation there how much?
A. $10.
Q. Following that through on page 7, what is the total reproduction cost ?
A. $12.
Q. What is the age?
A. Eight years.
Q Assumed life?
A. Twenty years.
Q. Per cent condition?
A. Seventy.
Q. Present value?
A. Eight dollars.
Q. Depreciation annuity?
A. One dollar.
Q. Then the contents of this building is one Davidson oil pump. You estimate the net construction cost of that pump at what?
A. $490.
889 Q. On page 7 that appears as an item of pump in building 13?
A. Yes, sir.
Q. And its total reproduction cost is what?
A. $595.
Q. Its age?
A. Eight years.
Q. Its life?
A. Twenty years.
Q. Per cent condition?
A. Seventy.
Q. Present value?
A. $417.
Q. Depreciation annuity on a sinking fund basis?
A. $21.
Q. Building 14 is the meter house referred to?
A. Yes, sir.
Q. What did you estimate the net construction cost of the foundations?
A. $185.
Q. These are the foundations for the meter?
A. Yes, sir; not for the building.
Q. Turning to the item on page 7, what is the total reproduction cost of the item?
A. $225.
Q. What is the age?

A. Two years.
Q. Life?
A. Thirty years.
Q. Per cent condition?
A. Ninety-six.
Q. Present value?
A. $216.
890 Q. Depreciation annuity on a sinking fund basis?
A. Five dollars.
Q. What is the next item?
A. One 14 foot by 14 foot American station meter; net construction cost $8,400.
Q. That is the largest meter at the station now?
A. Yes, sir.
Q. Going to page 7, next to the last line is meter.
A. That is the same meter.
Q. The total reproduction cost of the meter is what?
A. $10,194.
Q. What is the age?
A. Two years.
Q. Its life?
A. Thirty years.
Q. Per cent condition?
A. Ninety-six.
Q. Present value?
A. $9,786.
Q. The depreciation annuity on a sinking fund basis?
A. $214.
Q. The next item is piping valves in this meter house in connection with the meter.
A. Yes, sir.
Q. What is their net construction cost as you grouped them on page 73 of your report?
A. $870.
Q. What is the total reproduction cost in your judgment?
A. $1,056.
Q. What is the age?
A. Two years.
891 Q. Its life?
A. Thirty years.
Q. The per cent condition?
A. Ninety-six.
Q. Present value?
A. $1014.
Q. The depreciation annuity?
A. $22.
Q. Now the next building is 16. We have foundation; we have this boiler house I believe; you estimate the foundation at what?
A. $124.
Q. And in each instance the foundation is for the apparatus and not for the building itself?
A. Yes.

Q. That appears at the top of page 8 of your report, does it not?
A. Yes, sir.
Q. And what is the total reproduction cost of this item?
A. $151.
Q. What is the age?
A. Four years.
Q. Its life?
A. Fifteen years.
Q. Per cent condition?
A. Seventy-nine.
Q. Present value?
A. $119.
Q. Depreciation annuity on a sinking fund basis?
A. $8.
Q. The next item here is concrete slab on brick on edge, what is that for?
A. That is the floor in the boiler house.
892 Q. What is the net construction cost of these two items?
A. $69.
Q. Turning to page 8 this appears as slab, etc.?
A. Yes, sir.
Q. What is the total reproduction cost of that?
A. $83.
Q. The age?
A. Four years.
Q. Assumed life?
A. Fifteen years.
Q. Per cent condition?
A. Seventy-nine.
Q. Present value?
A. Sixty-six dollars.
Q. Depreciation annuity?
A. Four dollars.
Q. Now you have grouped boiler for stack and injector at the bottom of page 73; what in your judgment is the net construction cost?
A. $1055.
Q. These items are indicated in building 16 as boiler, etc. What is the total reproduction cost?
A. $1280.
Q. What is the age?
A. Four years.
Q. The life?
A. Fifteen years.
Q. Per cent condition?
A. Seventy-nine.
Q. Present value?
A. $1011.
893 Q. Depreciation annuity?
A. $66.
Q. At the top of page 74 in the contents of this building you have

a number of gauges and nine thermometers grouped; what is the net construction cost of those items so grouped?

A. $863.

Q. What do you use nine thermometers for?

A. Taking the temperature of gas in various parts of the plant.

Q. Turning to page 8, do these items appear under building 16?

A. Yes, sir; the total reproduction cost is $1,047.

Q. What is the age?

A. Four years.

Q. The life?

A. Ten years.

Q. The per cent condition?

A. Sixty-one.

Q. The present value?

A. $639.

Q. Depreciation annuity?

A. $87.

Q. Your next item I believe is fire protection?

A. Yes, sir. Under that item I included all the fire extinguishers, fire buckets, hose, reels, nozzles and all equipment for the fighting of fire.

Q. That is their own fire department?

A. Yes, sir; including fire alarm boxes.

Q. What is the net construction cost of those items?

A. $427.

Q. They appear under the head of fire protection in this building on page 8?

A. Yes, sir.

894 Q. What is the total reproduction cost of this item?

A. $518.

Q. The age?

A. Four years.

Q. Assumed life.

A. Ten years.

Q. Per cent condition?

A. Sixty-one.

Q. Present value?

A. $316.

Q. Depreciation annuity?

A. $43.

Mr. GUERNSEY: Mr. Byers, Mr. Vincent told me I had erroneously referred to this apparatus as all located in this one building. It is not; it is scattered over the plant.

The WITNESS: As a matter of fact the stuff in 16 ends with the item of boiler.

Q. The same page shows miscellaneous works tools $600. Are those items in the inventory?

A. They are now but not at the time I received the inventory. I didn't take the trouble to make a list of them; just put in $600, being assured that was much too small.

The MASTER: There are some tools in the inventory here.

A. They are in there now, but were not at the time it was given to me.

Q. A list of the tools of the works appears in the inventory at page 245; will you look at this list that appears in the inventory, if you have not already done so, and state whether after examining the list you are still satisfied that your estimate is under the actual net construction cost at $600.

A. Yes, sir; I feel certain this list of works tools will
895 amount to $600, the net construction cost, although I have not figured it.

Q. This item of works tools appears on page 8?

A. Yes, sir.

Q. What is the total reproduction cost of that item?

A. $728.

Q. Its age?

A. Two years.

Q. Its life?

A. Ten years.

Q. Its per cent condition?

A. Eighty.

Q. Present value?

A. $582.

Q. Depreciation annuity?

A. $60.

Q. Now, under the heas of outside apparatus you have grouped a Davidson pump, Fairbanks scales, Standard scales, stiff legged derrick, on page 74; will you state if you please what the net construction cost of these various items is in your judgment?

A. $1,640.

Q. That appears as outside apparatus on page 8?

A. Yes, sir.

Q. What was the total reproduction cost of these items in your judgment?

A. $1,990.

Q. The age?

A. Twenty years.

Q. The life?

A. Twenty years.

Q. The per cent condition?

A. Twenty-five.

896 Q. The present value?

A. $498.

Q. Depreciation annuity on a sinking fund basis?

A. $70.

Q. Now you have next a heading of wells, valaves, man holes, separators, etc. In a general way describe what you cover under that head.

A. There are several wells for the drawing of water around the place. Several manholes or brick basins in which valve boxes are located; and there are at least two or three separators of brick and timber, constructed and placed beneath the surface of the ground for the purpose of separating the water from the tar that comes from

the water gas sets in the form of an emulsion, which can only be separated by long standing and traveling at a certain temperature.

Q. Taking the items which you have so grouped, commencing near the bottom of page 74 and continuing on page 75, what in your judgment was their net construction cost?

A. $3,486.

Q. That appears on page 8 as wells, etc.?

A. Yes, sir.

Q. What is the total reproduction cost of those items under that heading?

A. $4,230.

Q. The age?

A. Ten years.

Q. The life?

A. Thirty years.

Q. Per cent condition?

A. Seventy-six.

Q. Present value?

897 A. $3,215.

Q. Depreciation annuity?

A. $89.

Q. Now, your next thing is exhaust pipe?

A. That is piping throughout the works' buildings for the carrying of steam exhausted from the engines.

Q. Then you have another head, valves?

A. Those are the valves on that steam piping.

Q. Radiators?

A. The radiators to which the exhausted steam passes before it reaches the air.

Q. Covering?

A. Covering on the exhaust steam piping.

Q. You have insulating?

A. Yes, sir.

Q. Exhaust head?

A. That is a metal device on the top of an exhaust pipe to take away the water condensation and muffle the noise.

Q. And some tracks?

A. For taking away the water out of these same pipes?

Q. They perform the same function as the drip pot in the distributing system?

A. Yes, sir.

Q. You have referred to separators?

A. No, this is another type.

Q. Taking these items including the exhaust steam piping, commencing on page 75 with valves, radiators, covering, exhaust heads, steam traps and separators, what in your judgment was their net construction cost?

A. $2,261.

Q. Turning to page 8 that appears under what head?

898 A. Exhaust steam piping.

Q. The total reproduction cost of those items *are* what?

A. $2,744.

Q. The age?
A. Five years.
Q. The life?
A. Twenty years.
Q. Per cent condition?
A. Eighty-two.
Q. Present value?
A. $2,250.
Q. Depreciation annuity?
A. Ninety-seven dollars.
Q. Without referring to it, this system of piping is all sketched in Exhibit 16?
A. Yes, sir.
Q. You have next steam piping?
A. That is live steam piping.
Q. You distinguish that from your exhaust system of piping?
A. Yes, sir; merely for convenience in making the inventory.
Q. The first item here is excavation. Some of this is underground is it?
A. Yes, sir.
Q. Now, taking steam piping and then the covering, includes what?
A. That is a covering over the pipe to prevent loss of heat, usually a magnesia compound.
Q. These valves pertain to what?
A. Steam valves on the heavy steam pipe.
Q. The hose?
A. Connected with the heavy steam pipe.
Q. And then you have in building 50 some piping?
A. That is steam piping indicated there because it is the
899 property of the company, the building is not.
Q. Then following that you have valves near the bottom?
A. These are in building 50; they pertain to the piping.
Q. And some excavation, covering and boxing?
A. Some of those pipes so laid in the ground are not only covered with ordinary insulating material, but protected by a box around the material.
Q. Taking those items of steam piping on page 77—covering, valves, hose and pipe, building 50, and the first three lines on page 78, please state whether or not the estimate there is the net construction cost and if so what it is?
A. I estimated their net construction cost at $4,064.
Q. Under what head is this item carried to page 8?
A. Steam piping.
Q. What is the total reproduction cost of these various items?
A. $4,932.
Q. The age?
A. Five years.
Q. Assumed life?
A. Twenty years.

Q. Per cent condition?
A. Eighty-two.
Q. Present value?
A. $4,044.
Q. Depreciation annuity?
A. $174.
Q. Now you have next an item on page 78, circulation pipe; what do you mean by that?
A. That is the pipe through which the water is circulated from the condensers into the holder tank, used for the carrying of gas to the condensers and for the prevention of freezing the water
900 in the gas holders in the winter time.
The MASTER: That hasn't anything to do with the distribution system?
A. No, it is just a little steam pipe for reflecting economy in the *the* manufacture.
Q. You have under this head W. I. pipe?
A. Wrought iron.
Q. You show the feet and the diameter?
A. Yes.
Q. Then you have a little tile?
A. Yes, sir.
Q. And these valves are used in connection with this pipe?
A. Yes, sir.
Q. Now, taking all the items included under circulation piping what does this page 78 show in detail, your estimate and the cost in the aggregate, and what is the aggregate?
A. The group is $1,287.
Q. Turning again to page 8, that is indicated there how?
A. As circulation piping.
Q. What is the total reproduction cost of this item?
A. $1,652.
Q. What is the age?
A. Five years.
Q. What is the life?
A. Twenty years.
Q. The per cent condition?
A. Eighty-two.
Q. The present value?
A. $1,281.
Q. The depreciation annuity?
901 A. $55.
Q. Now the remainder of page 78 of your report is covered by items under the head of oil piping?
A. Yes, sir.
Q. That includes also boxing and strainers and hand pumps, not mentioned in connection with the circulation piping. Please state whether this page shows each of those items and your estimate of the net construction cost and the aggregate and what is it?
A. Yes, sir; $4,200.

Q. Following that to page 8, how does it appear there?
A. Oil piping, etc.
Q. What is your estimate of the total reproduction cost?
A. $5,096.
Q. The age?
A. Five years.
Q. The life?
A. Twenty years.
Q. The per cent condition?
A. Eighty-two.
Q. The present value?
A. $4,179.
Q. The depreciation annuity?
A. $180.
Q. Now, the next page is headed water pipe; what do you mean by that?
A. Piping for carrying the supply of water throughout the work.
Q. Now as to the valves, I didn't ask you what I think is obvious; is it true that here as elsewhere where you specify valves, you show the number and size?
A. Yes, sir.
Q. So that here, for instance you would have three quarter
902 inch valves, etc.
A. Yes, sir; all in connection with the water pipe.
Q. What do you mean by specials?
A. They are fittings, special fittings, crosses, T's, elbows, etc.
Q. Some of this pipe appears to be also in this building #50?
A. Yes, sir.
Q. Does your page 79 show your estimate of the net construction cost of each one of those items?
A. Yes, sir.
Q. What is the aggregate?
A. $3,492.
Q. Carrying that to page 8, it appears under what head?
A. Water piping, etc.
Q. What in your judgment is the total reproduction cost?
A. $4,238.
Q. And the age?
A. Five years.
Q. Assumed life?
A. Twenty years.
Q. The per cent condition?
A. Eighty-two.
Q. The present value?
A. $3,475.
Q. The depreciation annuity on a sinking fund basis?
A. $149.
Q. Now, your next item on page 80 of exhibit 20 is what?
A. Gas piping, meaning small piping for the lighting of the place.

And for leading gas to the photometer room; any place they want a small supply.

Q. And that shows the net construction cost by items and in the aggregate.

903 A. Yes, sir; the aggregate is $536.

Q. That appears as gas pipe on page 8?

A. Yes, sir.

Q. What is the total reproduction cost?

A. $650.

Q. And the age?

A. Five years.

Q. And the life?

A. Twenty years.

Q. And the per cent condition?

A. Eighty-two.

Q. The present value?

A. $533.

Q. The depreciation annuity on a sinking fund basis?

A. $23.

Q. You have electric wiring, that is for what purpose?

A. That is small wiring around the plant for electric lighting.

Q. Does page 80 show the various items?

A. Yes, sir.

Q. And the net construction cost of each item in the aggregate?

A. Yes, sir; the aggregate is $189.

Q. That is carried to page 8 as electric wiring?

A. Yes, sir.

Q. And what is the total reproduction cost of that item in your judgment.

A. $229.

Q. And the age?

A. Five years.

Q. And the assumed life?

A. Fifteen years.

Q. And the per cent condition?

904 A. Seventy-two.

Q. The present value?

A. $165.

Q. Depreciation annuity on a sinking fund basis?

A. $12.

Q. Your next list on page 80 is a general item, sewer pipe.

A. Yes, sir; that is all the sewer pipe within the property of the company.

Q. You show at page 80 your estimate of the net construction cost of the various items and the aggregate?

A. Yes, sir; the aggregate is $2,817.

Q. That appears as sewer pipe on page 8?

A. Yes, sir.

Q. What is its total reproduction cost in your judgment?

A. $3,418.

Q. And the age?
A. Eighty years.
Q. The life?
A. Thirty years.
Q. The per cent condition?
A. Eighty-two.
Q. The present value?
A. $2,803.
Q. The depreciation annuity?
A. $72.
Q. Now you have your next item on page 81, drain pipe, what is the distinction between that and sewer pipe?
A. A drain pipe leads into the sewer pipe eventually, but carries only clean waters from the building until it reaches the sewer.
Q. You have again W. I. pipe?
A. Wrought iron, such as is under that heading; there
905 is tile there also.
Q. And you have the valves in connection with it?
A. Yes, sir.
Q. Taking these items under that general head of drain pipe as shown on page 81, does your report at that page show your estimate of the net construction cost of each item?
A. Yes, sir; the aggregate is $572.
Q. That appears on page 8 as drain pipe?
A. Yes, sir.
Q. What is its total reproduction cost?
A. $694.
Q. And the age?
A. Eight years.
Q. And the life?
A. Twenty years.
Q. The per cent condition?
A. Seventy.
Q. The present value?
A. $486.
Q. The depreciation annuity?
A. $25.
Q. Your next item is tar pipe? What is that for?
A. Pipe for conducting tar around the premises.
Q. And ydo you under that head on page 81 show your estimate of the net construction cost of each item and the aggregate?
A. Yes, sir.
Q. The aggregate is what?
A. $782.
Q. This item appears on page 8 as what?
A. Tar pipe.
Q. What is their total reproduction cost?
906 A. $948.
Q. And the age?
A. Seven years.
Q. And the life?

A. Twenty years.
Q. The per cent condition?
A. Seventy-four.
Q. The present value?
A. $702.
Q. The depreciation annuity?
A. $34.
Q. Now at pages 82 and the first half of 83, did you itemize the gas mains in the yards of the country?
A. Yes, sir; the gas mains and all the specials.
Q. That includes the mains, drips, valves, reducers, crosses, T's, quarter bends, solid slabs, plugs, flanges and caps.
A. Yes, sir.
Q. And do these pages I have referred to show your estimate of the net construction cost of each one of those items and the aggregate?
A. Yes, sir. The aggregate is $21,183.
Q. That appears as what on page 8?
A. Gas mains, etc.
Q. What is the total reproduction cost of this item?
A. $25,705.
Q. The age?
A. Eight years.
Q. Assumed life?
A. Fifty years.
Q. Per cent condition?
A. Ninety-two.
907 Q. The present value?
A. $23,649.
Q. The depreciation annuity on a sinking fund basis?
A. $239.

At this time an adjournment was taken until 1:30 P. M.

908 1:30 P. M., TUESDAY, *July* 25, 1911.

HENRY I. LEA, being continued on direct examination by N. T. Guernsey, Esq., testified as follows:
Q. Now following the item that you have just referred to Mr. Lea, there is an item here of p-ving?
A. Yes, sir.
Q. That paving is where?
A. Within the fence enclosing the works.
Q. And it includes some cement sidewalk and curbing. What do you mean by curbing?
A. The curbing is outside and some of that cement walk is outside.
Q. This is all figured in square feet, square yards or cubic yards.
A. Yes, sir.
Q. Does page 83 of your report Exhibit 20 show your estimate of the net construction cost of these various items?
A. It does.

Q. As well as the total?
A. Yes, sir.
Q. What is the total?
A. $2,586.
Q. Now turn to page 8 that appears under what item?
A. Paving.
Q. And what is the total reproduction cost in your judgment?
A. $3,138.
Q. And the age?
A. Eight years.
Q. And life.
A. Fifteen years.
909 Q. Per cent condition?
A. 54.
Q. Present value?
A. $1,695.
Q. And depreciation annuity?
A. $162.
Q. Now your next item page 84 is what?
A. Fencing and gates.
Q. You have divided that separating it into what classes or on what basis?
A. 1,218 feet and ten inches of the fencing and gates is on the property owned by the company. 475 feet six inches of this fencing and gates are on property leased by the compan-, but the fence was built and is owned by the company.
Q. Now what have you estimated as the net construction of these items of fences on page 84 of your report?
A. $2,869.
Q. How does that appear on page 8?
A. As fences, etc.
Q. And what is the total reproduction cost of it?
A. $3,481.
Q. The age?
A. Six years.
Q. Life?
A. Twenty years.
Q. Per cent condition?
A. 78.
Q. Present value?
A. $2,715.
Q. Depreciation annuity?
910 A. $123.
Q. You next have rubbish kiln?
A. Yes, sir.
Q. You have estimated under net reproduction cost page 84, at $10.
A. Yes, sir.
Q. This is an appatatus for busning rubbish?
A. Yes, sir.
Q. And it appears——

A. I omitted that, didn't think the amount warranted a recalculation.
Q. Now your next item?
A. Oil unloading device.
Q. That is what in a general way.
A. Wait a minute, this rubbish kiln I overlooked in making the calculation, but I find I caught it here before I got through and it is the last item on page 8.
Q. What is your estimated reproduction cost?
A. $12.
Q. And age?
A. Three years.
Q. Estimated life.
A. Ten years.
Q. Per cent condition?
A. Seventy three.
Q. Present value?
A. $9.00.
Q. Depreciation annuity on sinking fund basis?
A. $1.00.
Q. To return to this oil unloading device, that is what?
A. That is a rigging for the unloading of oil cars, a device
911 for lifting the unloading pipe so you can place your car anywhere within reasonable range and still make the connection.
Q. The oil comes in tank cars?
A. Yes, sir.
Q. An apparatus for unloading them?
A. Yes, sir.
Q. What is the net construction cost of this apparatus?
A. $134.
Q. That appears on page 8 as oil unloading device?
A. Yes, sir.
Q. And total reproduction cost is what?
A. $162.
Q. And age?
A. Twenty six.
Q. Life?
A. Twenty years.
Q. Per cent condition?
A. Ninety three.
Q. Present value?
A. $151.
Q. Depreciation annuity.
A. $6.00.
Q. You have another item here lumber in yard, is that some supply of lumber on hand?
A. That is some lumber that is not carried in the store room records it is an extra lot.
Q. You estimate the net construction cost of that as what?
A. $67.
Q. How does that appear over here at page 8?

A. As lumber.

912 Q. What is the total reproduction cost?

A. $81.

Q. Age?

A. One year.

Q. Life?

A. Twenty years, 97 per cent condition, present value $79, depreciation annuity on a sinking fund basis $3.00.

Q. The next item you have on page 84 is fixtures, etc., in building No. 50. Do you remember what that building is?

A. Yes, that is the last building, it is used for a meter fitting or repair shop.

Q. You say fixtures, what are those?

A. The lighting fixtures and little incidental trimmings that the company put into the building.

Q. What is the total amount which you have estimated as net construction cost of these items?

A. Including meter dipping outfit and meter provers, $520.

Q. That appears under what heading on page 8?

A. Fixtures building 50.

Q. What do you estimate the total reproduction cost?

A. $631.

Q. Age?

A. Four years.

Q. Life.

A. 20 years.

Q. Per cent condition?

A. 86.

Q. Present value?

A. $543.

Q. Depreciation annuity?

913 A. $22.

Q. The next item is relief holder No. 18. Is this plate No. 21 in Exhibit 16 a photograph of that holder?

A. Yes, sir.

Q. I wish you would point out on this photpgraph—that is in how many sections.

A. Two.

Q. Lifts, is that what you call it?

A. Yes, sir.

Q. Where is the line between the two lifts?

A. Right here.

Q. That is in three sheets?

A. Three sheets to the lower lift above the curve we call it to the top of the tank.

Q. This holder or tank is below the ground?

A. Yes, sir; masonry tank below the ground.

Q. That is the holder referred to in sketch No. 56 is it?

A. No, that is the 300,000 holder.

Q. Is it on the other side of that page, on the right hand side of that page?

A. Yes; the right hand side of sketch 56 is the relief holder.

Q. Now you say there are two lifts, the 175,000 cubic feet holder in brick tank. In the first place the 175,000 cubic feet is the capacity?

A. That is the effective working capacity or amount of gas which can be displaced by the holder. It is less than the figured capacity of the lifts themselves of course.

Q. You don't know why of course?

A. Because the lifts have to extend down into the water as one point and because as the second point you can't displace all
914 of the gas that is in the enclosure. It has an effective displacement of 175,000 cubic feet.

Q. Now you say sixteen inch and twenty inch connections, what does that refer to?

A. To the cast iron pipe taking gas into and out of the holder.

Q. You have computed and estimated this net construction cost by items?

A. Yes, sir.

Q. As they appear commencing near the bottom of page 84 and finishing on page 65 of Exhibit 20.

A. Yes, sir.

Q. And what in your judgment was the net construction cost of this holder?

A. $29,870.

Q. Turning to page 8, how does that item appear there?

A. As relief holder No. 18.

Q. And what in your judgment is the total reproduction cost of this holder?

A. $36,248.

Q. Its age?

A. Forty nine years.

Q. Assumed life?

A. Forty years.

Q. Per cent addition?

A. Twenty five years.

Q. Present value?

A. $9,062.

Q. Depreciation annuity?

A. $481.

Q. Now the next item you have is storage holder No. 19,
915 that is a two lifter?

A. Yes, sir.

Q. Of what capacity?

A. 309,432 cubic feet.

Q. Is that in a tank that is below the ground or above the ground?

A. Below the ground.

Q. Why do you call that a tank?

A. Because it is filled with water, the purpose is to hold water.

Q. This water is the water that seals the gas in the holder?

A. Yes, sir.

COURT: How far down is the holder?

A. That goes twenty one feet below the surface of the ground. The holder on the lower end rests on the bottom of this tank when

down. When up to the maximum height the holder is forty two feet above the ground.

COURT: How much of it goes into the water?

A. Well it all goes into the water.

Q. When it is full how much in the water?

A. None of the tank in the water except a few inches of the lower rim of the outside section.

Q. You said then there was none of the tank in the water?

A. No, I meant none of the holder proper in the water except the lower rim.

Q. I wish you would explain to the Master in this same connection—this holder is in two lifts, sections?

A. Yes, *sur.*

Q. One of them goes down inside of the other. Now I wish you would explain to him how and when it goes back you preserve the water seal between those two sections after that section is up in the air so as to prevent the escape *if* the gas?

916 A. I can do that better with a sketch than any other way I think. When both sections are down and no gas at all in the holder, the outer section has a grip hanging over like that and the inner section has a cup which is capable of engaging this grip but do not at the bottom of the tank, but the grip on the outer section is under water. When the grip goes up it engages the cup and serves as a seal still below the water and as it comes out there and the other section comes up to this cup it is filled with water and that maintains the seal so the gas cannot get out.

Q. It picks up water as it goes up there?

A. Yes, sir.

COURT: Kind of a cup there?

A. Yes, sir; a cup.

Q. Now have you estimated in detail and in aggregate the net construction cost of this storage holder No. 19 that appears on page 85 of your report?

A. I have shown there the price.

Q. What is the gross amount?

A. $45,699 net construction cost.

Q. Turning now to page 8, how does this item appear on that page?

A. As storage holder No. 19.

Q. What is the total reproduction cost in your judgment?

A. $55,454.

Q. The age?

A. 20 years.

Q. Life.

A. 40 years.

Q. Per cent conditions?

A. 63.

917 Q. Present value?

A. $34,963.

Q. Depreciation annuity?

A. $735.

Q. The next item is storage holder 20, that is what we call the large holder?
A. Yes, sir.
Q. What is its capacity?
A. 1,132,000 cubic feet.
Q. In how many lifts or sections is that holder?
A. Three lifts.
Q. Is that tank in which holder sinks as the gas comes out of it below the ground or above the ground?
A. This is in a steel tank above the ground.
Q. Is this tank shown by this picture, plate No. 25?
A. Yes, sir.
Q. You said a steel tank, is there any masonry around there?
A. Yes, sir. It has a brick surrounding wall to protect the tank against the water and prevent the freezing of the water, preserve the steel.
Q. Your last answer suggested another thing. Doesn't the water freeze up in these tanks in the winter?
A. No, sir.
Q. Why don't it?
A. Because the surface of the water is always kept in motion and water can't freeze when it is in motion. Steam jets are used for this purpose or in some infrequent cases a supply of hot water is caused to circulate around.
Q. So that is one use to which some of these steam pipes are put to?
918 A. Yes, sir.
Q. To keep this water from freezing?
A. Yes, sir.
Q. Now have you beginning on page 85 and concluding on page 86, estimated by items and in the aggregate the net construction cost of this storage No. 20?
A. Yes, sir.
Q. What is the amount of this cost as you estimate it?
A. $113,717.
Q. Now turn to page 8, how does this holder appear there?
A. As storage Holder No. 20.
Q. And what in your judgment is the total reproduction cost of this holder No. 20?
A. $137,988.
Q. What is its age?
A. Eight years.
Q. Its life?
A. Forty years.
Q. Per cent condition?
A. 89.
—. Present value.
A. $122,809. Depreciation annuity is $1,830.
Q. The next item page 86 is oil tank 21. What is that tank used for?
A. For storage of oil used in making gas. I am not sure about

that I will have to refer to my inventory, whether that is used for the crude oil, or for the tar oils, I am not sure.

Q. Mr. Vincent says 21 is for tar and 22 for oil and I guess there will be no objection to use taking his word for it?

Mr. BYERS: Oh no objection, if Mr. Vincent says that it
919 is undoubtedly true.

Q. Now have you estimated and set out on page 86 here, the net construction cost of this oil tank No. 21, in detail and in the aggregate?

A. Yes, sir.

Q. What is the aggregate?

A. $5,944.

Q. Turning to page 8, that appears how?

A. Oil tank No. 21.

Q. What in your judgment is the total reproduction cost of this item?

A. $7,213.

Q. Age?

A. Nine years.

Q. Life?

A. Thirty years.

Q. Per cent condition?

A. 80.

Q. Present value?

A. $5,770.

Q. Depreciation annuity?

A. $152.

Q. Your next item on page 86 of your report is oil tank No. 22, capacity 64,000 gallons. Have you estimated and show- on that page the net construction cost of this tank in detail and in the aggregate?

A. I have.

Q. What is your estimate of the net construction cost in the aggregate.

A. $2,852.

920 Q. Turning now to page 8, that appears how?

A. Oil tank No. 22.

Q. What is the total reproduction cost of this item in your judgment?

A. $3,461.

Q. Its age?

A. Fourteen years.

Q. Life?

A. Thirty years.

Q. Per cent condition?

A. 65.

Q. Present value?

A. $2,250.

Q. Depreciation annuity?

A. $73.

Q. Now turn to page 87 of your report, have you there estimated the net construction cost of oil tank No. 23?
A. Yes, sir.
Q. Shown it in detail and in the aggregate?
A. Yes, sir.
Q. And what is the aggregate?
A. $1,424.
Q. Turning to page 8, that appears how?
A. Oil tank No. 23.
Q. What is the total reproduction cost of this item?
A. $1,729.
Q. Age?
A. Twenty years.
Q. Life?
A. Thirty years.
921 Q. Per cent condition?
A. Forty five.
Q. Present value?
A. $778.
Q. Depreciation annuity?
A. $36.
Q. The next item appearing on page 87 of your report is oil tanks No. 24 and 25, capacity 300,000 each. Are those the tanks that are shown on the photographs plate 28?
A. Yes, sir.
Q. They are in masonry foundation?
A. Yes, sir. Those are brick tanks.
Q. What is this thing that -eems to stick up above the brick work?
A. There is a steel tank in there, I presume the area of the brick tank is calculated, it is so any leakage in the steel tank the brick will hold it.
Q. It is a steel tank inside of a brick one?
A. Yes, sir. It is a think very often done in the storage of oil because oil is much harder to hold than water in tanks and if it begins to get away from you it is very dangerous and it is better to spend some money and brick enclose it so if the oil tank should break it would hold it and cut out the chance of a conflagration.
Q. Does this section 29 show a cross section showing how the steel tank sits down inside of the masonry tank?
A. Yes, sir. That is a common practice in the storage of oil.
Q. Have you estimated and set out in detail and in aggregate on page 87 the net construction cost of thes- two oil tanks Nos. 24 and 25?
922 A. Yes, sir.
Q. What is it in the aggregate?
A. $16,894.
Q. Turning now to page 8, that *apparsas* oil tanks 24 and 25.
—. Yes, sir.
Q. What is the total reproduction cost of these two tanks in your judgment?
A. $20,500.
Q. Age?

A. Two years.
Q. Life?
A. Thirty years.
Q. Per cent condition?
A. 96.
Q. Present value?
A. $19,680.
Q. Depreciation annuity?
A. $430.
Q. Your next item is holder oil tank No. 36, on page 87, you show the net construction cost at what?
A. $99.
Q. That is carried over as what on page 8?
A. Oil tank No. 36.
Q. The total reproduction cost is what in your judgment?
A. $121.
Q. Age?
A. 18 years.
Q. Life?
A. Thirty years.
Q. Per cent conditions?
923 A. 53.
Q. Present value.
A. $64.
Q. Depreciation annuity?
A. $3.00.
Q. Your next item at the bottom of page 87 is holder oil tank No. 58, capacity 9500 gallons. You have estimated the net construction cost of that tank?
A. Yes, sir.
Q. Amounts to how much?
A. $108.
Q. That is on page 8 as what item?
A. Oil tank No. 58.
Q. And the total reproduction cost of that item is how much?
A. $495.
Q. Age?
A. Seven years.
Q. Life?
A. Thirty years.
Q. Per cent conditions?
A. 85.
Q. Present value?
A. $421.
Q. Depreciation annuity??
A. $10.
Q. Your next and last item in this class is on page 88 of Exhibit 20, pipe covering tank No. 16. In the first place what is a pipe covering tank?
A. It is a thing more of a trough than tank for the coating of service pipes with tar or some compound of tar before you
924 place them in the ground to protect them against rust.

Q. Did you estimate the new construction cost of this tank?
A. Yes, sir.
Q. At what amount?
A. At $59.
Q. That appears on page 8?
A. As pipe coating tank.
Q. And what in your judgment is the total reproduction cost of this item?
A. $72.
Q. The age?
A. Eleven years.
Q. Life?
A. Ten years.
Q. Per cent condition?
A. 25.
Q. Present value?
A. $18.
Q. Depreciation annuity?
A. $6.
Q. You have here an aggregate on works equipment, total reproduction cost of $510,179. Will you please state whether that is where you obtained the item in the same amount under the heading, reproduction cost and opposite works equipment in your l-tter of June 24, which precedes this report?
A. It is.
Q. On that same page 8, state whether or not the total of the present value $384,723, is the basis for the sale figures in the column p-esent value in the letter referred to, opposite the words, works equipment?
A. It is.
925 Q. Turning over to page 89 of your report, you take up what part of the plant?
A. This is headed distribution system, street mains, and is the first page of Exhibit "I." That is the distribution system and I have divided that into street mains, services and meters, with some miscel-aneous material.
Q. Taking this under street mains, taking this up first on page 89 so that we may understand it, you have how many feet of main two and one half inches or under in the aggregate?
A. $33,947.
Q. Turning to page 209 of the inventory, that corresponds with the number of feet of main of that size shown in the inventory does it not?
A. Yes, sir.
Q. Now following this down, you take up next on page 89 three inch main and your aggregate there corresponds with the aggregate of three inch main in the inventory?
A. 35,301, yes.
Q. Now turn to four inch main which appears at page 209 of the inventory, the aggregate amount of four inch main is 573,724?
A. That is what I have.

Q. The six inch mains, the aggregate amount in the inventory appearing as 163,004?

A. I have that.

Q. And the aggregate amount of 8 inch main appears 64,934.

A. I have 65,607, but mine includes the river crossing, and the river crossing in the inventory is given separately. We will have to add 673 feet to this 64,934, add the street mains eight inch to the river mains 8 inch gives a total of 65,607 which agrees with
926 my total, I have specified that as being river crossing which checks with this inventory.

Q. Now taking ten inch main, the inventory page 209 shows 32,008 feet in the aggregate. How many do you have.

A. 32,008.

Q. Then 12 inch main, the inventory shows 31,349. You aggregate what?

A. 31,349.

Q. Fourteen inch main, the inventory shows 622, you aggregate the same amount?

A. 622 feet.

Q. Sixteen inch main the inventory shows 27,206?

A. The inventory shows 27,206 in the streets and 1,300 in the river, that makes 28,506, and my aggregate is 28,506.

Q. Twenty inch main the inventory shows 6,036?

A. The same as I have.

Q. And the twenty four inch the inventory shows 1,180?

A. I have 1,819, but I have included river crossings which are given below as 639 feet, that makes the total in the inventory 1,809 feet, which is what I have.

Q. Now then going back to this first item how have you separated these totals in these pages 89 and 90 with reference to what?

A. I have separated them with reference to the pipe laying as a whole in unpaved streets and have shown the ta-ing up and replacing of pavements existing over mains as a separate item.

Q. Take this first item and explain this a little further, you have 25,527 feet, then kind of pavement none. What does kind of pavement mean?

A. That is part of the description of the kind of pavement existing over the pipe referred to in the foregoing column.

Q. Then if there is pavement the character of it is specified.
927 A. Yes, sir.

Q. If there is not you say none?

A. That is right?

Q. Now what occasion is there for distinguishing for instance between brick on concrete and asphalt on concrete?

A. Well the cost of tearing up and replacing these pavements varies, consequently the cost of replacing a main in a given street will depend very largely on the kind of paving existing over that main.

Q. Now the inventory as I recall it contains an estimate of the amount of paving which it would be necessary to tear up and restore in the relaying of these mains or perhaps only a statement of

the width of the trenches from which that amount might be deduced. I wish you would state whether in making your estimate up you have accepted these amounts stated in the inventory, or whether you have taken the amount of paving which in your judgment it would be necessary to remove and replace for the doing of the work with these respective sizes of pipe?

A. I used none of the figures as to the amount of paving necessary to be taken up given by the company. I saw them in the inventory but I did not use them because they did not agree with what I considered standard practice and in arriving at my cost I have taken the least width of paving I could as it seemed to me the proper width without referring to the inventory as to the amount the company thought should be removed.

Q. In other words you acted on your own judgment basid on your information and experience?

A. Yes, sir.

COURT: Under two and a half inch pipe I notice you have 25,527 feet that there is no pavement over.

928 A. That is in dirt streets, upon streets that have not been paved.

COURT: *Go* do you get at that?

A. That has been scaled, all of the paving maps in the city have been compared with the street main maps of the company. The company will find paving will exist on such and such a street such a distance. Then they will scale the amount on each street of pipe they have unt-l they arrive at the number of feet of each sized pipe they have on that street. By going over the entire city they arrive at the totals of each size of pipe, get the total length.

Q. As I understand you the amount given here in the tables of pipe that is laid where there is no paving, that is figured in that size?

A. Yes, sir. The next line shows that of the two and a half inch and under, 1835 feet are under pavement made by brick on concrete. The next 3200 on brick on said foundation the next 23933 asphalt on concrete. I had to separate these because the cost of doing different kinds of work will vary widely.

COURT: Wood block on concrete?

A. There are only 322 feet in blocks.

COURT: 150 feet under macadam.

A. Yes, sir.

COURT: These vary in the cost of replacing the pavement?

A. Yes, sir.

COURT: Also vary in the cost of laying the pipe originally?

A. If no paving on any of these streets, I would not have separated these items at all.

COURT: I understand in these figures you separate them because of the difference in the cost of laying in dirt or brick on con-

929 crete *pr* sand, asphalt on concrete, wood block on concrete and macadam.

Mr. BYERS: These different kinds of paving, statements here with reference to them are made solely with reference to the

present condition in the street and without any reference whatever to the condition when the pipes were laid?

A. Made solely with reference to the present condition because we are trying to arrive at the present reconstruction value.

Mr. BYERS: It is not intended here to indicate what the condition of the streets were at the time the pipe were actually laid?

A. Not at all.

Q. You state present condition, present as in the sense of the time of the values?

A. As of the time of the inventory.

Q. You refer to noting the various kinds of paving. This plat 29 in Exhibit 16, shows the various kind of paving?

A. Yes, sir.

COURT: Let me ask one other question. Where there is marked none, is that where the streets indicated has no paving on?

A. Yes, sir.

Q. Taking this main, that is two and a half inch or under, and you have a column headed here net construction cost of pipe laid in unpaved streets ?

A. Yes, sir.

Q. That I see is carried out for each item?

A. Yes, sir.

Q. So that you figured each item first as if there were no pavement?

A. Yes, sir.

Q. Then what is the next column?

930 A. Net construction cost of tearing up and replacing pavement. I might have figured those two items together if my tables had been differently arranged, but with the tables arranged as I had them I could save time making two separate columns so I worked them in that way.

Q. Then what is your final column?

A. That is the total net construction cost which is the sum of the two previous columns.

Q. So taking your first item here, 25,527 feet where there is no pavement your last column and your first column are the same because there is nothing to add on account of paving?

A. Yes, sir.

Q. Now take your next item, this brick on concrete, 1835 feet. Then the first column is the next construction cost as if *they* were no paving there?

A. Yes, sir.

Q. Now what is the next column?

A. $1,290 which would be cost of tearing up and replacing the pavement over that strip of pipe at this time which added to the previous figure, $386 gives a total net construction cost of $1,676 shown in the right hand column.

Q. Now I will ask you whether taking the two and a half inch pipe and under on this page 89, shows your estimate in detail and in the

aggregate of the total net construction cost of relaying that main?
A. It does.
Q. And that is what, the aggregate?
A. For the two and a half inch and under, $11,715.

Mr. BYERS: For the purpose of the record here, we don't want to make objections as we go along. I suppose it is your purpose after this examination which I take it is to identify and
931 qualify this exhibit, you will then offer the exhibit?
Mr. GUERNSEY: I expect to offer the exhibit.
Mr. BYERS: We can then make our objections to such parts as we otherwise would make now if this was incompetent testimony you were putting in here.

Q. Turning back to page 9, under your summary of physical property you have a sub head distribution system and street mains and where does this 33,947 feet of mains, two and a half inches and under appear?
A. Under street mains, two and one half inches and under, total reproduction cost, $14,838.
Q. That is $14,838 is the estimate of the total reproduction cost of these mains just considered?
A. Yes, sir.
Q. Now you have next the age in years?
A. 8.97 years.
Q. I suppose we might just as well stop here and ascertain how you get at that. I will call your attention in this connection to the next page of your report, page 10, Is that your information?
A. That shows the method of calculating by which I arrived at the present age.
Q. Now will you explain that?
A. The result arrived at is the greatest composite age of the distribution system as a whole. There are two ways of working this out, you may arrive at it either through going over the records of installation of the system by so many feet of such sized pipe each years, or you may work it on the basis of investment. Of course it is on the basis of investment we are interested here, but I
932 worked it both ways. The installation basis shows that in 1910 there are a total of 183.89 miles at the end of the year of which amount 6.73 miles have been installed during that year, previous year. 167.16 in use at the end of the year and 9.28 installed during that year and so on. We go back through the records that way until we come to 1891 and from 1891 to 1864 the records are not clear as to the mains added per year but the total amount in use at the end of the period of 26 years was available and by extending the curve represented by the growth of the distribution system from 1891 to 1910, extending that backwards——
COURT: You got this then from an investigation of the records?
A. Yes, sir.
COURT: That showed how much was installed each year?
A. Yes, sir; as far as the records went.

Q. You personally did not make these computations?
A. No, I did not.
Q. This was furnished to you?
A. Yes, sir.
Mr. GUERNSEY: We shall identify this by somebody else unless Mr. Walter's work does it.
A. No, I didn't do this myself.
Q. Let me ask you one more question, perhaps it is not necessary but you spoke about extending this curve backward, by that you mean you had the history from 1910 back to 1891.
A. Yes, sir.
Q. And that gave you the ratio in which the mains had increased or averaged there for some 20 odd years?
A. Yes, sir.
Q. And in order to get the conditions prior to that time,
933 you on that ratio extended that curve back to the commencement of the plant?
A. Yes, sir.
—. And that gave you as the average age of the mains in the plant what?
A. On the installation basis gave 10.3. On the investment basis gave 8.97.
Q. Is there any reason for adopting one of these figures instead of the other?
A. Yes, sir.
Q. That was what?
A. The only figure you can adopt here is the investment basis figure.
Q. Why.
A. Because the depreciation is figured on the investment.
Q. What do you mean by the installation basis or number of miles?
A. That is only a check on the other method of calculation.
Q. What do you mean by the investment basis?
A. Well that is what is called the average, if you invested $10,000 ten years ago and $5,000 nine years ago and $6,000 four years ago and so on, the weight of average of your investment would be obtained by multiplying your $10,000 invested ten years ago by ten and your $6,000 invested six years ago by six and so on coming down to the present time when you divide by the total number of years.
Q. Then if I may ask you a leading question, your investment basis is based upon the number of dollars invested in the mains each year.
A. Yes, sir.
Q. The installation basis would be based on the miles in-
934 stalled?
A. Yes, sir.
COURT: Is that the actual price at the time they were invested or at this time?
A. Well it would not make any difference as long as you maintain

a correct ratio between the *united* on the different sized pipe, you would get the same result in years whether you used four or forty as long as you maintain the ratio between that pipe and all other sizes.

Q. In figuring the investment did you figure money actually invested?

A. No, I don't know what the money actually invested was. In arriving at the investment basis you start out and take any one sized pipe at a given unit per foot. You know what the ratio should be between that sized pipe and any other sized pipe and follow that ratio out and it won't affect your average in the slightest degree what the figure was as long as you maintain the ratio between the different sizes. You may use units that are 50 per cent low or 50 per cent high or any other per cent above or below as long as you maintain the same ratio to themselves.

Q. Now what is the assumed life of that pi-e, two and one half inch and under?

A. Twenty five years.

Q. I see that the assumed life of most of the pipe is 75, why is this so low?

A. The life of a pipe depends very largely first on the kind of pipe and then on the size. Two and one half inch and under is what is called wrought iron pipe, but as a matter of fact it is steel in nearly all cases these days and it has a much shorter length of life that three inch wrought iron, three inch being heavier
935 a great deal. Then comes the next size four inch cast iron, cast iron is longer lived than wrought iron in any size and the size being larger the metal is thicker and these two reasons combined give four inch cast iron about fifteen years more life than three inch. Then comes *16* inch cast iron and when you get six inch you get a longer life than four inch. The size and quality of the pipe determine the life.

Q. What is the per cent condition as you estimated it of this two and one half inch and under main?

A. 76.

Q. Present value?

A. $11,277.

Q. Depreciation annuity on a sinking fund basis?

A. $381.

Q. Now turning to the next size larger, that is marked on page 89 three inch W. I., that simply means what?

A. Wrought iron.

Mr. BYERS: This 8.97 averages what?

A. That is the composite age of all the street mains. It is obviously impracticable to try to work out a depreciation of an individual piece of street main pipe when you haven't an exact -ecord of them so the only thing you can do is to strike an average which will help some sections of pipe and which will run against other sections. It is the fairest thing that can be done, not exact, but the fairest thing you can do.

Q. Now passing to the three inch mains, have you on page 89 of your report estimated the net construction cost of this main, including the extra cost on account of pavements both in detail and in the aggregate.

A. I have.

936 Q. And what is the aggregate amount of this estimate?

A. $30,811.

Q. That appears as what on page 9 in the summary?

A. Thre- inch W. I.

Q. Under street mains?

A. Yes, sir.

Q. What is the estimate of the total reproduction cost of these mains?

A. $39,025.

Q. As to these mains you have the same age in years because you have taken the composite age all the way down?

A. Yes, sir. The same age on all mains.

Q. So I won't ask you about that again. I will wait until we get to services. Now what life have you on these three inch mains?

A. 35 years.

Q. And per cent condition?

A. 85.

Q. Present value?

A. $33,171.

Q. Depreciation annuity on sinking fund basis?

A. $645.

Q. Have you in the same way on page 89 estimated in detail and in the aggregate the net construction cost of the four inch cast iron mains?

A. I have.

Q. And what is the aggregate amount?

A. $451,908.

Q. That appears on page 9 as four inch C. I.?

A. Yes, sir.

Q. And what is the net reproduction cost of these mains

937 in your judgment?

A. The total reproduction cost is $572,370.

Q. The life?

A. Is 50 years.

Q. Per cent condition?

A. 91.

Q. Present value?

A. $520,857.

Q. Depreciation annuity?

A. $5,071.

Q. Now in the same way on page 89 have you estimated in detail and in the aggregate the total net construction cost of the six inch mains?

A. I have.

Q. What is the aggregate?

A. $175,985.

Q. That appears as six inch cast iron on page 9?
A. Yes, sir.
Q. And what is the total reproduction cost of this item?
A. $222,901.
Q. Life?
A. 75 years.
Q. Per cent condition?
A. 96.
Q. Present value?
A. $213,985.
Q. Depreciation annuity?
A. $1,034.
Q. Now have you shown on page 89 in the same manner you estimate in detail and in the aggregate of the total net con-
938 struction cost of the 8 inch mains?
A. I have.
Q. And what is the aggregate.
A. $101,272.
Q. That appears as 8 inch C. I. on page 9?
A. Yes, sir.
Q. What is your estimate of the total reproduction cost of these mains?
A. $128,270.
Q. Life?
A. 75 years.
Q. Per cent condition?
A. 96.
Q. Present value?
A. $123,139.
Q. Depreciation annuity?
A. $595.
Q. Turning now to the next page 90, have you in like manner estimated in detail and in the ag-regate and shown thereon the total net construction cost of the ten inch mains?
A. I have.
Q. And what is this total?
A. $57,392.
Q. That appears on page 9 as ten inch?
A. Yes, sir.
Q. And what is the total reproduction cost of this item in your judgment?
A. $72,691.
Q. Life?
A. 75 years.
939 Q. Per cent condition?
A. 96.
Q. Present value?
A. $69,783.
Q. Depreciation annuity?
A. $337.
Q. Have you shown in like manner on page 90 in detail and in the

aggregate your estimate of the total net construction cost of the 12 inch cast iron mains?

A. I have.

Q. And that amounts to what?

A. $61,709.

Q. And that appears how on page 9, as 12 inch?

A. 12 inch C. I.

Q. What is the total reproduction cost of those mains?

A. $78,159.

Q. Life?

A. 75 years.

Q. Per cent condition?

A. 96.

Q. Present value?

A. $75,033.

Q. Depreciation annuity?

A. $363.

Q. Now have you the fourteen inch on page 90. Have you estimated the total net construction cost of the fourteen inch mains?

A. I have.

Q. And that is what?

A. $1,267.

Q. That appears as 14 inch C. I. on page 9?

940 A. Yes, sir.

Q. What in your judgment is the total reproduction cost of these mains?

A. $1,605.

Q. Life?

A. 75.

Q. Per cent condition?

A. 96.

Q. Present value?

A. $1,541.

Q. Depreciation annuity?

A. $7.00.

Q. Have you in like manner estimated in detail and in the aggregate and so shown upon page 90 the total net construction cost of the 16 inch cast iron mains?

A. I have.

Q. What is the aggregate?

A. $98,602.

Q. That app-ars as 16 inch C. I. on page 9?

A. Yes, sir.

Q. And what is your estimate of the total reproduction cost of those mains?

A. $124,887.

Q. The life.

A. 75 years.

Q. Per cent condition?

A. 96.

Q. Presenr value?

A. $119,892.

Q. Depreciation annuity?

941 A. $579.

Q. Taking the 20 inch mains, have you in like manner on page 90 shown your estimate in the aggregate and in detail of the total net construction cost of them?

A. I have.

Q. This amounts to how much?

A. $23,364.

Q. That appears as twenty inch on page 9?

A. Yes, sir.

Q. And what is the total reproduction cost of these mains in your judgment?

A. $29,593.

Q. Life?

A. 75 years.

Q. Per cent condition?

A. 96.

Q. Present value?

A. $28,409.

Q. Depreciation annuity?

A. $137.

Q. And have you in like manner on page 90 shown the total net construction cost in detail and in the aggregate as you estimate it of the 24 inch cast iron mains?

A. I have.

Q. That amounts to how much?

A. $16,311.

Q. That item appears under 24 inch on page 9?

A. Yes, sir.

Q. What is the total reproduction cost of these 24 inch mains?

A. $20,659.

942 Q. Assumes life?

A. 75 years.

Q. Per cent condition?

A. 96.

Q. Present value?

A. $19,833.

Q. Depreciation annuity?

A. $96.

Q. Now the river crossings, the 8 inch main, the 6 inch main and the 24 inch main are included in thee estimates to which we have referred and in each instance the amount which you estimated these crossings appear?

A. The figures I have given you from my report include the river crossin-s with the particular sizes of pipe but they are not handled separately as they are in the inventory.

Mr. Byers: Before you go farther I would like to inquire if the witness has the figures anywhere in this exhibit by which he arrived at this investment age of 8.97?

A. I have not.

Mr. Byers: We will ask for these later on. I suggest it now so the witness may be prepared for that.

Q. Does the method by which this is obtained appear on page 10?
A. My details are not there but the method is shown.
Q. Both that and the average age of mains on the installation basis?
A. Yes, sir; that shows the method of calculation.
Q. Now the next thing you take up is what Mr. Lea?
A. Services.
Q. That is on page 91 of your report, Exhibit 20?
A. My pages are not numbersed. It is headed distribution sys——

943 Q. Before I forget it, did you take the computation of the amount of paving given in the inventory or did you rely upon your own judgment or experience as to the amount of pavement it would be necessary to remove and replace?
A. Used my own judgment and experience altogether, worked from my own tables only.
Q. Here I see you have the number of services 17,120. This aggregate amount of service 17,170 I see accords with the number given at page 217 of Exhibit 15. You obtained it from the inventory.
A. Yes, sir.
Q. And I see you have analyzed this number of services with reference to whether they were under p-ving or not, and if so the kind of paving?
A. Yes sir.
Q. For what reason?
A. For the same reason that I had them analyzed in the street main work, the cost of the services will be determined very largely by the kind of pavement you have to go through to lay that service.
Q. Now your column headed net construction cost, pipe, -aid in unpaved street on page 91 of your report, includes what on account of paving, if anything?
A. Nothing.
Q. Now what does the next column cover?
A. That covers only the net construction cost of tearing up and replacing the pavement over the pipe specified.
Q. What is the third colunm?
A. The total of the items of the foregoing two columns.
Q. Column one covers the cost except paving?
A. Yes, sir.

944 Q. This page 91 shows in detail and in the aggregate your estimate of the total net construction cost of these house services?
A. It does.
Q. And what is that total?
A. $287,626.
Q. Now turning back to page 9, under what head does that appear there?
A. As house services.
Q. And what is the total reproduction cost?
A. $364,290.
Q. Now what is the age?
A. 8.94 years.

Q. What is that, average age?

A. That is the composite age.

Q. Can *t*ou explain to us briefly and clearly the difference between average age and composite age.

A. Yes, sir. The average age you would arrive at by say taking a period of five years, you laid 100 services the first year, 90 the second year, 80 the third year 70 the fourth year, and sixty the fifth, add them up and divide by five would be the average age*m* but as a matter of fact the composite age would be really some more than that because more tha*h* one fifth of these mains were in the first year. If you were atte*no*ting to figure the interest on your money, the composite age of these mains, you would see very soon the composite age was the one you had to rely on. You have got to multiply the investment by the year, by the number of years it has been in service, and then divide finally by the total number of dollar years in order to arrive at the composite age. If you don't do that you are fooling yourself.

945 COURT: The composite age is the real average?

A. It is the true average, but not what is ordinarily meant when we say average. It is the true average.

Q. I wish you would turn to page 11 of your report, the second page after this summary that we are now referring to and state what that is and what that has to do with the ascertainment of this average age?

A. That table shows the calculation I have just described which was gone through in arriving at the composite age, the true average age of the services in use at the time of the taking of this inventory. That shows that the composite age or true average age on the investment basis of the services was 8.94, the installation basis shows 8.27 in this case we have just reversed the other, here the installation shows a smaller age than the investment, but the investment is the one we have to stand on so I have had to give the services 8.94 years instead of 8.27 years shown by the installation.

Q. Taking this up a little more in detail you have 1910 the total invest-ent in services, then you have a fraction of a year.

A. I might explain Mr. Guernsey that these figures shown there as investment do not s-ow the actual investment, they represent what I was explaining. They represent the total of certain units which bear a given ratio to each other but are not themselves the correct units or cost only of reproduction.

Q. Take 1905 for instance, you multiply that amount by the number of years to get your dollar years?

A. Yes sir.

Q. You run it down that way and what do you do for this period from 1864 to 1878.

946 A. That is handled the same way as the main figures were handled you extend the curve backwards from the point where the records leave you to the beginning of the operation of the plant, that is the best you can do.

Q. You take that then for your average age there?

A. Yes, sir. I have taken the composite age or true average age on the investment basis as my figure.

Q. Now then turning to page 9 what is the life of these services?

A. Twenty five years.

Q. And there per cent condition?

A. 76.

COURT: These services are what, wrought iron?

A. Yes, they are all bought as wrought iron, but there is a great deal of question these days whether you are getting wrought iron when you buy it, specify it. Very frequently they give you soft steel.

Q. What is your estimate of their present value?

A. $276,860.

Q. And what is your estimate of the depreciation annuity on a sinking fund basis on account of this item?

A. $9,351.

Q. Now turning to page 91 of your report, your next item is lamp post services. Have you estimated and shown on that page in detail and in the aggregate their net construction cost?

A. I have.

Q. And what is the total?

A. $24,943.

Q. Turning back to page 9, that appears as lamp services upon that page?

A. Yes, sir.

Q. What in your judgment is the total reproduction cost of this item?

947 A. $31,592.

Q. How is the age ascertained?

A. In the same mann-r as for house services.

Q. What is the estimated life in years?

A. Twenty five.

Q. Per cent commission?

A. 76.

Q. Present value?

A. $24,010.

Q. And depreciation annuity on a sinking fund basis?

A. $811.

COURT: Let me ask you a question, who owns these posts?

A. The posts risers and services belong to the company. I have estimated the lamp posts complete with the exception of the lamp heads, the risers and posts belong to the company, the service pipe riser and post. The lamp and lamp head belong to somebody else.

Q. With reference to the posts, the number of lamp posts and services this information is shown on page 218 of the inventory Exhibit 15, is it not?

A. Yes, sir.

Q. Your next matter you take up on page 92 of your report is what?

A. The line pot drips. That page covers the miscellaneous material which is also a part of the street main system properly.

Q. These drips and valves are inventoried where in Exhibit 15?
A. Page 215.
Q. I recall I think that Mr. Moul testified that this inventory omitted one 24 inch line pot drip. Your number of line pot drips in existence was taken from that in the inventory I believe?
A. Yes, I have no twenty four inch drip.
948 Q. So if he is correct about that that is something that is omitted from your valuation which might properly be added to it. Now taking these line pot drips does page 92 of your report show in detail and also in the aggregate your estimate of their net construction cost?
A. Yes, sir.
Q. And what is that?
A. $2,400.
Q. That appears under what item, opposite what item on page 9?
A. Line pot drips.
Q. And what is your estimate of the total reproduction cost of these drips?
A. $3,040.
Q. You give what as the age?
A. The age of the street mains as a shole.
Q. And why?
A. Because they are a part of the street main system, attached to it and made of the same material.
Q. What would they be good for without the system, without the mains?
A. Nothing that I know os.
Q. So they are a part of that system and have the same life.
A. Yes, sir.
Q. And what is their estimated life?
A. Their estimated life will be between the maximum life of the pipes composing the main system because they are located on pipes of various sizes, most of them though on the large pipes so I have gone some above the average in allowance of life and give them sixty years.
Q. And what is the per cent condition upon this item?
A. 94.
949 Q. Present value?
A. $2,857.
Q. And the depreciation annuity on sinking fund basis?
A. $22.
Q. Now the valves you have listed here are listed at page 215 of Exhibit 15 I believe?
A. Yes, sir.
Q. Your list coincides with that one I find by looking at it. Did you at page 92 show and estimate in detail and in the aggregate of the net construction cost of these valves?
A. Yes, sir.
Q. Where are these valves located?
A. Scattered about the city. The purpose of them being to pro-

vide a means of isolating certain sections of the city in case of trouble, might be compelled to repair a certain main if there were a break in it. If you had no means of shutting off any section all the gas held in storage would get away from you so in the course of time you could not keep up the supply so to protect yourself and your consumers you put in these valves so you may shut off on either side of that break and let the rest of the city go ahead while the repair is being done. Suppose you have to take up a given part and replace with a larger one the same thing ap-lies.

COURT: They are emergencies.

A. That is all.

Q. What is the estimate of the total net construction cost of the valves?

A. $3,519.

Q. I read this $3,319.40.

A. I have $3,519.40 and that 40 cents might have been
950 dropped before we came in here, should have been dropped. It is a mistake in copying and should have been $3,519.

Q. Will you please read the various amounts of these valves?

A. $50, $1,039.50, $594, $237.60, $316.80, $148.50, $737, $396.

Q. Now add it if you please and we will be sure we are right?

A. It should be $3,519.40.

Q. Now Mr. Lea turning back again to page 96, that item appears a*w* valves?

A. Yes, sir.

Q. And what is the total reproduction cost?

A. $4,457.

Q. Age?

A. 8.97 years.

Q. You obtained that just the same as you did for the drips?

A. Yes; for the same reason.

Q. Estimated life?

A. 60 years.

Q. For what reason?

A. The same.

Q. Per cent commission?

A. 94.

Q. Present value.

A. $4,190.

Q. Depreciation annuity?

A. $33.

Q. Now the next item you have page 92, is steam railroad crossings, what do you mean by that. Has the company a*h*y steam railroad crossings?

A. The company does not own any steam railroads, but there are a number of points, 191 points in the city of Des Moines
951 where the company's mains pass under the steam railroad tracks, counting tracks two rails as a single track.

COURT: That is to say where there are three or four tracks?

A. If your pipe goes under eight different rails that is equivalent to four crossings, two rails to a crossing because you have got to shore each time. That is the reason it is counted each time. You

have got to shore up under each track the same as though there were no other tracks there.

Q. Now then this item, if I understand you then is on account of additional cost that would be involved in reproducing the plant on account of the presence of these steam railroad crossings.

Q. Yes, each time you are to go under a steam railroad you must first get the consent of the railroads, sometimes that is difficult, then you will have to take extra precautions to see there is no cave in of any kind, do everything you can to prevent the possibility of caving in, that means expensive work.

Q. What in your judgment is the net construction cost of these steam railroad crossings, if I may put it that way, that is the additional cost due to the fact that they are to be encountered?

A. $3,820.

Q. What appears as steam railroad crossings on page 9?

A. Yes, sir.

Q. And what is in your judgment the total reproduction cost of this item?

A. $4,839.

Q. And the age you take as what?

A. 8.97.

Q. For the same reason you did these other pertinent things.

A. Yes, sir.

952 Q. And the life?

A. 60 years for the same reason.

Q. What is the per cent condition?

A. 84.

Q. What is the estimated present value.

A. $4,548.

Q. And the depreciation annuity on sinking fund basis?

A. %36.

Q. You also have here page 92, an item street railroad crossings. What is the fact as to whether they are analagous to the steam railroad crossings?

A. They are analagous, but the expense of passing under them is not as great as the steam railroad, the weights you have to carry are not as great and the corresponding expense is less. A single tract street railway can be crossed under for $15 extra.

Q. Are these street railroad and steam railroad crossings the ones referred to at page 216 of Exhibit 15?

A. Yes, sir.

Q. Have you at page 92 shown your estimate of the net construction cost which would be incurred on account of these street railroad crossings?

A. I do.

Q. What is it in the aggregate?

A. $5,585.

—. This item appears at page 9 under street railroad crossings.

A. Yes, sir.

Q. What is your estimate of the total reproduction cost on account of this item.

A. $7,074.

Q. Age?
953 A. 8.97 years.
Q. For the same reason as the other things?
A. Same reason as before.
Q. And the estimated life?
A. 60 years for the same reason before explained.
Q. Per cent condition?
A. 94.
Q. What in your judgment is the present value on account of this item?
A. $6,650.
Q. And depreciation annuity on a sinking fund basis
A. $52.
Q. You next take up here your last item on page 92, tools.
A. These are tools that relate to the distribution system, bicycles ditch pumps, etc.?
Q. What do they want bicycles for?
A. The men who look after complaints do a lot of gratuitous work and in some cases the regular fitters have to use bicycles or motorcycles or horse and wagon to get around with. For emergency work use, bicycles or motorcycles are used.
Q. How did you make your estimate of these bicycles and so on?
A. I had no statement of the tools in the distribution department nor in the works at the time I made up my figures and I put in here one lump sum which I am very sure is less than the detail would show.
COURT: Simply an estimate?
A. Yes, just a rough off hand estimate.
Q. I find for instance here on page 230 of Exhibit 15, under distribution system, stable equipment, ten horses, 17 wagons,
954 two automobiles, four motorcycles, two tri cars, 12 sets of harness Where do they come in here?
A. They don't come in.
Q. They would be included in this item of $5,000 here?
A. This list may have been made up, I am not sure, I don't remember it now, but there came to me after I had passed that stage in my work some lists of tools, for instance an itemized list of the stuff in the office, the distribution tools and works tools and I did not consider these items of enough importance to warrant me in going through my calculation again because I felt sure I was on the low side anyway and I was willing to let it go at the figures I have put in here. I have not these items as there shown in my report at all. I have just a lump sum of $5,000, this covers the total. I know that is less than the total sho-ld be, but I had it down and will stand on it.
Q. Are these items I have read items that would have been included in this $5,000?
A. Oh yes, all of them.
Q. What are tri cars?
A. I presume that means a motorcycle with three wheels.
Q. Now these items you have estimated at what amount?
A. $5,000 net construction cost.

Q. That is the last item on page 92?
A. Yes, sir.
Q. Are you still satisfied that that is a minimum estimate?
A. I am satisfied that it is extremely conservative.
Q. That appears as what on page 9?
A. As tools.

Q. And what in your judgment is the total reproduction
955 cost of that item.
A. $6,333.

Q. Age?
A. 8.97 years.
Q. Estimated life in years?
A. 60. These figures are admittedly not correct, these ages and lives applied to tools.
Q. Per cent condition?
A. 94.
Q. Present value?
A. $5,953.
Q. Depreciation annuity on sinking fund basis?
A. $47.
Q. Now turning to the last item on your distribution syste-, we have the meters at page 93 of your report. I wish you would turn to page 227 and 228 in Exhibit 15 and state whether or not that is the statement in the inventory as to the meters which constitute a part of the plant of the complainant, the Des Moines Gas Company?
A. The statement of meters you have referred to is a statement of consumer's meters in use in the city of Des Moines on the 1st of November 1910. The statement to which I worked is a corrected statement bringing the figures down to the 1st of January 1911.
Q. That is the date of your inventory as a complete — and valuations.
A. Yes, sir. I have more meters than this inventory shows because mine is brought up nearer date.
Q. Brought up to the 1st of January 1911.
A. Yes, sir.

Q. In the first place you have down here the letters P. P.
956 A. Means prepayment. That is the nickel in the slot machine Judge Sloan refers to.

Q. What is a prepayment meter?
A. It is practically the same as an ordinary meter, except that it is provided with a little sort of a box fastened to it on one side into which you may drop a quarter or any other standard coin and this quarter will operate a little mechanism, clock work which will admit gas to the meter or allow it to pass through the meter until 25 cents' worth of gas, if that is the coin you have dropped, has passed and then this device automatically shuts off the sup-ly after having notified the consumer his quarter is about to run out.
Q. How does it give notice?
A. Through dimming the light.
Q. Will they take any coin?

A. You can make them to take any coin and you can adjust them for any given price of gas, that is most of them you can.

Q. Mr. Haines suggests a question, will they work with milk tickets?

A. Unfortunately they will with some.

Q. One thing I have not talked with you about, but I will ask you about and see whether you are familiar with it. How many of these prepayment meters are there?

A. Of the five light size there are in use 10,201 or were on the 1st of January 1911 in use 10,201.

Q. Of the ten light size?

A. 227 in use at that time.

Q. What does this letter A mean?

A. That is a trade name for another design of meter which is practically the same as the ordinary meter except has larger
957 seals, larger ducts, greater capacity to a give- size shell.

Q. Is it a prepayment or not?

A. No it is not a prepayment.

Q. You say you put a quarter of a dollar into one of these meters and get that much gas by virtue of this mechanism there is there. Now suppose that the price of gas were changed what would you have to do to these meters?

A. Well some of them you would have to send back to the factory and have this present device thrown away because they are probably not all capable of adjustment. If you have all devices that are capable of adjustment over a range that will cover the proposed change in price then you would have to get each individual meter and readjust it or take it to the shop and readjust for the new price of gas.

Q. So if there were a change in the price of gas there would be in this present system about 10,428 meters which would—it *be-n* necessary to make some mechanical adjustment before the company could put a new rate into effect?

A. Yes, sir.

Q. Take *aa* an illustration this new ordinance which imposes various penalties which I have forgotten for charging more than 90 cents for gas. Nos. if that ordinance were in effect is there any practical way that the company without the delay incident to changing about 10,500 of these meters could comply with it?

Objected to as incompetent, immaterial and not the subject of expert testimony.

A. Absolutely none. The quickest thing they could do would be to replace them with new meters, that would be the quickest thing. Of course that would involve a great deal of expense, and that would involve a great deal of time.

958 —. How long would it take, have you made any estimate of that to reasonably adjust a system such as this to a change in the price so that the company might comply with such ordinance?

Objected to as immaterial and incompetent, so far as this witness is concerned, because his whole proposition is based upon the theory

of the reproduction without any reference whatever to the material on hand or character of it, and especially as to meters other than just the number of them.

Mr. GUERNSEY: I propose to ask this witness some questions that do not relate to reproduction, I see no reason why I should not be permitted to do so.

A. I have not made any estimate of that but I do not believe it would be possible if you would put on all the men you could get here and order new meters, do not expect to make any changes, just order 10,000 new meters from the shops, I don't believe it would be possible to make the change inside of sixty days, using every facility open to you?

Q. And without reference to expense.

A. Without any reference at all to expense. It would be exceedingly poor business, but that would be the minimum time in my judgment.

Q. Now turning to your report, Exhibit 20, in this report on page 93 here, have you given first the net construction cost of the meters of each size or class?

A. Yes, sir. Of all of the meters of a given size and class but not of the individual meters.

Q. I notice here there is one 2000 light C. I., I suppose that is cast iron?

A. Yes, that means a meter with a cast iron shell of the
959 station meter type.

Q. That suggests what I was going to ask you, and that is whether or not that is a station meter?

A. It is not a station meter, it is of the station meter type, but it is for some job where the demand for gas is too large for the ordinary type of meter to meet the requirements.

Q. Some large consumer then?

A. Yes, sir.

Q. Does this page 93 show your estimate of the net construction cost of the meters in use and if so what is the amount?

A. The total net construction cost of meters in use I estimate to be $179,333.

Q. Before we turn to the other page I notice a memorandum at the bottom of this page, above prices include cost of meter from connections and incidentals as per schedule. What does that mean?

A. Well that note has no business there as a matter of fact because corresponding notes might have been written about everything else there. It was on one of my memorandum- when it went to the stenographer and came back in this form. It means only that I have all the details in my tables and I do not have to go back to the service calculations to get this separate. There is sometimes a difference in the plan, some people figure meter connections as part of the service. I figure them as part of the meter.

Q. Turning to page 9, this item appears as meters in use?

A. Yes, sir.

Q. And what in your judgment is the tota- reproduction cost of this item.

A. $227,145.

960 Q. Now what is the age of these meters?

A. 7.7 years.

Q. How do you ascertain that, is there a memorandum here with reference to that?

A. Yes, sir.

Q. Is that found on page 12, headed average age of meters installation basis?

A. Yes, sir.

Q. I wish you would explain that memorandum?

A. The same explanation applies to this as applies to the corresponding Exhibits or sheets for age of service and for age of mains. The composite age was arrived at in the same manner.

Q. A little more in detail if you please. You began in 1886.

A. In 1886 there were at the end of that year 1261 meters in use. Going to the third column number of meters installed during the year we find that figure of 1261, which only means in this case that the 1261 is the total meters installed during the preceding 22 years.

Q. Why didn't you give the meters installed during the time of the preceding twenty two years?

A. The figures were not available, the records were not available.

Q. And for these twenty two years——

A. The curve of the period since then was extended backward to give the approximate figures.

Q. Take 1886 you have your 1261 meters and you multiply that by 29.1?

A. They had been in use at the time of this calculation 29 years making a total number of meter years of 36,397.

Q. How did you get that one tenth, or do you remember?

961 A. I don't remember. Oh yes, that is the weighted average. The number of meters installed during the latter part of the 22 years of which no record is obtainable was greater than the number of meters installed during the beginning and this curve showed that a weighted average would give you for this 22 years an equivalent of 29.

Q. The next year you multiply by the 23 years, that is from 1887 to 1910, as I understand it, the 43 the number of meters installed during that year?

A. Yes, sir.

Q. And so on your multiple is of the number of meters installed each year by the number of years they have been in service?

A. Up to the time of the investigation.

Q. And what do you give as the average age of the meters on the install-tion basis.

A. 8.27 years.

Q. You have a memorandum following that average of meters of investment basis which is less, which did you adopt?

A. The investment basis figure.

Q. Why?

A. Because depreciation is based on investment.

Q. Based on the dollars invested at the specific time?

A. Yes, sir.

Mr. BYERS: Does that appear anywhere figured up?

A. Not beyond this, no further detail than I have shown here.

Mr. BYERS: We will want that when we come to that part of the examination.

Q. You have taken then 7.7 as the age in years of this item of meters to which we were just referring.

A. Yes, sir.

962 Q. I believe I asked you the total reproduction cost, if not will you please state it?

A. You did on the meters in use.

Q. Meters in use is what we were talking about?

A. Total reproduction cost of the meters in use I estimate would be $227,145.

Q. The age in years.

A. 7.7.

Q. Estimated life is what?

A. 25 years.

Q. Per cent condition?

A. 80.

Q. And the pres-nt value?

A. $181,516.

Q. And depreciation annuity on sinking fund basis?

A. $5,831.

Q. Now then take the meters in stock. In the first place I cal- your attention to page 228 of Exhibit 15 and ask you whether the meters in stock 853 shown there check wi h the meters in stock on which yiu base your estimate?

A. The meters in stock November 1st were the same as the meters in stock January 1st according to the record we have here. My figures agree with the inventory.

Q. You have estimated -he net construction cost, shown that in detail upon page 93.

A. Yes, sir.

Q. In the same manner in which you estimated this same thing as to meters in use.

—. ——.

Q. And what in your opinion is the net construction cost of the meters in stock referred to on page 93 of your report?

963 A. $7,309.

Q. Turning now to page 9 of your report under what item do these meters in stock appear there?

A. As meters in stock.

Q. And what in your judgment is the total reproduction cost of these meters in stock?

A. $9,259.

Q. What is the age which you show there?

A. They are practically new. They are so new that they are less than one year and I put in no age on them.

Q. Then by the meters in stock you mean meters on hand ready for use but not used?

A. Yes, they are all in No. 1 condition, they *are* recently tested and proven.

Q. And what is the life of these meters?

A. 25 years.

Q. Their per cent condition?

A. 100.

Q. Present value?

A. $9,259.

Q. Depreciation annuity on sinking fund basis?

A. $238.

Q. These items that I have called your attention to now commencing with the mains and ending with the meters that we have just referred to constitute what you have classified as the distribution system in your report.

A. Yes, sir.

Q. And what is the aggregate tota- reproduction cost of these item-?

A. $1,963.027.

Q. Now will you turn to your l-tter of June 24, 1911, to Mr. Haines and state whether or not that is the item which
964 appears in that letter opposite distribution system and under the head reproduction cost?

A. It is the same figure. The figure in the letter was taken from Exhibit "B" of my report.

Q. Passing on to the 5th column of page 9, I find the total distribution system u*b*der present value to be $1,732,969. Turning to the letter of June 24, I find opposite distribution system under the head present values the same amount. Is this Exhibit "B" the source from which this amount given in the letter is obtained?

A. It is.

Q. Now you have following this entire total, total physical equipment. Now to ascertain what you include in that may we not look back through this Exhibit "D" and see what you have itemized as equipment?

A. This Exhibit "D" is all of the physical equipment.

Q. What is the fact as to whether that total which is given on this page 9, as $2,839,795 under the column total reproduction cost covers what appears in that colum- commencing with the works equipment in buildings 1-A and B on page 5, and running down through page 9?

A. Commencing with real estate.

Q. Does *t*our physical equipment include the real estate?

A. Yes, sir.

Q. Then it begins with the beginning of page 5?

A. Physical equipment includes real estate, building-, works equipment and distribution system. If you will add together from the figures in my letter under reproduction cost opposite the headings real estate, buildings, works equipment and distribution sys-
965 tem you will arive at the total of $2,839,795 shown as the total reproduction cost in Exhibit "D" of my report.

Q. Now Mr. Lea, under this second column on page 9, age in years, total distribution system you have 8.77. That seems to be something that is different from anything that precedes it. Will you explain how you get that. And what it is?

A. You get that in the entire distribution system just as you get the corresponding figure for the mains alone by working out the composite age on investment basis of equipment in the distribution system.

Q. Now you have following that under the same column opposite total physical equipment, age in years 8.9 and a star there, asterisk referring you to a note apparently at the bottom all physical equipment except real estate. Will you explain that?

A. Yes, because I am unable to determine the age of the real estate.

Q. And this age alone is only material when you come to matters of depreciation I suppose.

A. Yes, sir.

Q. And that is not applied to real estate.

A. No.

Q. Now your next column you have 50 as the assumed life in years for the distribution system. That is on the investment basis?

A. Yes, sir.

Q. Composite or average life?

A. Yes, the true average life.

Q. And in the same column right below that in the table of physical equipment, you have 46 as the assumed life in years?

A. Yes, sir.

966 Q. That is the composite or average life of the total physical plant, except real estate.

A. Yes, sir.

Q. Then you have under the next column in your distribution system as per cent condition 88.23. You get that in the same way I suppose as your composite per cent condition, of the entire distribution system?

A. It is yes.

Q. Below that in the same column you have the figures 85.3 opposite total physical equipment. What are they?

A. That is the composite per cent condition of all physical equipment except real estate. The real estate of course is 100 per cent, that would tend to bring up the balance of the plant and has no right there.

Q. Now one or two general questions on this matter. I want to ask you first whether in making up your estimates in your annuity prices and in the other prices which you have adopted you have in each instance adopted what you believed to be reasonable market value at the time of the inventory or of the valuation, that is January 1, 1911, of the item in question.

A. I have.

Q. In asking you the questions I note that I have been at times at least careless about the tense, sometimes using present tense and sometimes past tense, so I wish you would state whether each of

your answer- in giving your estimates and the results of your estimates is as of the date of this valuation, that is January 1, 1911.

A. All of my figures refer to the property of the company as reported to me as of the date of January 1, 1911.

Q. That don't quite answer my question. I asked you for
967 instance I remember of noticing it myself, what is your estimate of the net construction cost of this item, or what was your estimate I said. I want to know whether all of your answers as to these estimates are to be taken as referring to the date of January 1, 1911?

A. Yes, they are.

The COURT: You figure the price of labor and material as of January 1st?

A. I do not mean by that I assumed you would go ahead and begin the laying of these mains on the first of January but I figured on the reproduction of the mains which were in existence on the first of January during such times as the company would want to install such equipment, of course in the summer time.

Q. And the price of labor required?

A. Yes, sir.

Q. And price of material required?

A. Yes, sir.

COURT: How do you get at the price of labor?

A. By making local inquiry and from information I have got here in line with other information I have from other parts of the country.

COURT: How do you get the price of machinery?

A. By referring to my notes, I have a great many, I might show you some of them, if you are interested.

COURT: No I do not care for that.

A. I have a great number of records of the cost of construction and erection of all kind of gas equipment all over the country.

COURT: Not from personal purchase?

A. Oh no. Well I have been with concerns that were building all these kinds of stuff and I have all the record these companies
968 I had to have.

Mr. GUERNSEY: You said in the commencement of your examination you had designed, built and sold this machinery?

A. Yes; I have.

Q. Does this include the kind of apparatus you are referring to here?

A. Exactly. It is the kind of apparatus with which I have been working for fifteen years exclusively.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

969 Wednesday Forenoon Session.

JULY 26, 1911, at 9:30 a. m.

Counsel for the respective parties all present.
Testimony on behalf of complainant resumed as follows:

HENRY I. LEA, re-called for further direct examination, examined by N. T. Guernsey, Esq., testified as follows:

Q. Before I forget it, there is one little matter that perhaps might be subject to misconstruction. In estimating the cost or additional cost on account of railroad crossings, did you include or take into account anything on account of the difficulties in obtaining consent or permission from the railroads.

A. I did not in this case. I mentioned that was one of the things we frequently find adding to the expense.

Q. I next want to take up with you the matter of going value. What do you mean by that?

A. The going value of a company is that value which is beyond the physical equipment of the property but is an attribute of the physical equipment. You might say going value is measured by the difference between the total present value of the physical equipment of a company and the total value of the company as a whole as a revenue producing concern of which the physical equipment is but a part.

Q. You have said the Company—you mean the plant, the property?

A. By Company I mean the physical equipment plus the business; I do not mean the corporation itself.

Q. Now, to go into a little more detail about that, in the first part of the reproduction of the property of the corporation, such as the complainant here, the Des Moines Gas Company, you would
970 reproduce the mere physical property?

A. Yes, we have several methods—if they are methods—of arriving at the going value of gas companies, but with the exception of one they have all been more or less subject to the personal judgment of the estimator as based on the total volume of business done and those estimates have not been capable of the verification which it seems they should be.

Q. Well, you are getting away from me a little. To go back, when you reproduce the property of the Des Moines Gas Company, we will say, the first thing reproduced would be the mere physical property of the plant?

A. Yes, sir.

Q. What is the fact as to whether there would be any difference between the value of the bare physical property of the Des Moines Gas Company, taking it in the concrete instead of the abstract, and the value of that same property with its ordinary capacity developed up to its present condition?

—. There is a very large difference in the value.

Q. Please tell the Master whether the element of value which represents this difference is what you designate as going value?

A. It is.

Q. Now, then, you said a moment ago that the difficulty had been not in recognizing the existence of this value, but in measuring it?

A. Yes, sir.

Q. What method have you adopted for the purpose of measuring this going value of this plant?

A. I have made a detailed estimate of the cost of reproducting the physical equipment of the company and of the cost of
971 reproducing the present business of the company, taking each of the steps involved from the beginning up to the point at which you would have acquired a business equal to that of the present company.

Q. Then, if I understand you, you have taken as your fundamental proposition that the property would be worth, is worth, what it would cost to reproduce it?

A. Yes, sir.

Q. That the purchaser, if he wanted the property would be willing to pay what it would cost to reproduce it?

A. Yes, sir.

Q. And you have applied that to this feature of going value which is one of the attributes of this property?

A. Yes, sir; my entire calculation is made with a view of determining what it would cost to reproduce, not only the physical equipment, but the business which that physical equipment serves, or makes it possible to serve.

Q. At the risk of repeating a little—that cost of reproduction is only material because of the assumption if a man wanted to buy it he would give what it would cost?

A. Yes; and my justification for it is based on this. If we assume that a house has cost one thousand dollars, and has depreciated by one hundred dollars, and is today worth nine hundred dollars; that some other man comes along and wants a house exactly like that, in an exactly similar location and is up to the point where he must decide whether to buy the existing house or build another house, he is going to figure both methods; he is going to find that to build another house like this would cost him at least one thousand dollars. On top of this thousand dollars he would have the additional element of chance—he might go through with this thousand dollars as estimated, which would include some allowance for contingen-
972 cies, but that might not be enough. This man is going to be willing to pay for the existing house what it would cost to reproduce it. If in that house there happened to be conducted a grocery business with an established patronage and established income, and this man wanted to use this new house for that same business in that same place, he would have to add to the cost of building his house the cost of building up a corresponding grocery business, or the cost of getting established relations with people who buy groceries; that would be one of the things which he would have to consider in arriving at the total cost of this venture of bringing his new building, plus the new business up to the point where he can buy the new building, plus the existing business. That cost of the existing business he would have to consider as an attribute, for its

going value is an attribute of the physical equipment of the company; it is a part of the physical equipment of the company and has to be so considered.

The MASTER: Would that be good will?

A. No, sir; there isn't any good will in the sense it is ordinarily used in connection with public utilities. There is a good will in connection with public utilities, but it is not a thing which you can capitalize as such, or which you can include specifically in any account anywhere. I have made no allowance whatever for good will, or for franchise value. But the allowance made for a going concern value is a totally different thing; is independent of good will and independent of franchise value. Represents only what a man would be willing to pay for a created business of a given company.

Q. Now, Mr. Lea, what is the fact as to whether, in order to accurately estimate this cost of reproducing the business or income or earning capacity of the going plant, it is necessary to study
973 the history of the plant, and if it is necessary, why it is necessary?

A. It is necessary before you can accurately estimate the cost of reproducing the business of this company, to study not only the history of the company, but the history of the town, because the future growth of the town itself has a very important bearing on the cost of developing a corresponding business in what we might call a hypothetical plant.

Q. Now, turning to your report, Exhibit #20, you take up this matter of going value in Exhibit J to your report, do you not?

A. Yes, sir.

Q. Now, there is first here a plat at page 94, and there is a key here—the curves are indicated by numbers, are they not?

A. Yes, sir.

Q. The first curve is #1; where do we find that on the plat?

A. About the middle of the page.

Q. Point it out to the Master?

The MASTER: I have got it.

Q. Now that curve indicates what?

A. Curve #1 indicates the total manufacturing cost of the hypothetical plant. I might say, to make that more clear, that to find out just what would be the cost of building up a business equivalent to that of the Des Moines Gas Company at this time, I have had to assume that I begin at the initial step of reproducing a plant capable of handling this business; then go on through each of the various steps required in building up the business of the hypothetical plant, which we assume is to be built in a town having exactly the same characteristics as those of Des Moines, and we will say we will build it in a town in an adjoining township, and with the present
974 state of knowledge and education of the community with respect to the use of gas in that town, we begin the building of this hypothetical plant which is to catch up at some time in the future with the Des Moines Gas Company, in the plant itself and in the business of the company. On this first chart is shown the rate at which each of the features of the hypothetical plant and going

plant would develop. This curve #1, dotted line, refers to the hypothetical plant. All dotted curves refer to the hypothetical plant.

Q. You call those all curves, whether they are straight lines or not?

A. Well, that is a trade name; current usage in engineering, but is not strictly correct.

Q. That is the way you use the word?

A. Yes, sir.

Q. Taking this curve #1, it begins at what time?

A. At the left hand edge of this plant and shows a portion of years.

Q. The word years appears at the top of the column at the left hand edge of the plat?

A. Yes, sir; the lower edge of the plat is used to indicate dollars, beginning with ten thousand dollars, and increasing by ten thousand dollars, amounts per square.

Q. At what year does this curve which represents the total manufacturing cost of the hypothetical plant begin?

A. That begins in 1912.

Q. Why does it begin with 1912?

A. Because the date of this inventory is January 1st, 1911, and it is assumed if you conceive the idea of either buying an existing property or building this duplicate property at that time, in
975 order to find out what the going value of the existing property is, you have got to go through all these calculations of building a hypothetical plant to see how much you can afford to pay for the going value of the existing property. Having conceived this thing on the 1st of January 1911, and having gone ahead as fast as it is humanely possible, as fast as is consistent with the view of getting your plant established as quickly as possible, you will still be unable to make gas before the first of January, 1912. Consequently you have no manufacturing cost at all after that period.

Q. Then the time there, this 1912, is fixed by the time when the hypothetical plant would first begin to manufacture gas and therefore you first have a manufacturing cost?

A. Yes, sir; on the first of January, 1912, your construction would have been so far advanced that a portion of your plant and a portion of your distribution system could be used, but your construction would not yet be completed?

Q. How do you find what your manufacturing cost, what rate it would be in 1913 of this hypothetical plant?

A. You find the total manufacturing cost of the hypothetical plant only after you have done a lot of other work. First you have got to find out how much gas your plant will be selling that year; you have got to find out the manufacturing cost and the distribution cost.

Q. How do you find out from this plat?

A. Looking up to the year 1913, running along that 1913 line until the horizontal line is crossed by curve #1; then following down at the point of the crossing down to the lower line, you find you are between $73,000 and $74,000; the total manufacturing cost

for the year 1912 and 1913 would be between $73,000 and $74,000.

This curve, I might say, only is made up after all the figuring
976 is done.

Q. Do you simply evolve this curve out of your inner consciousness or is it based on some computation?

A. They are all results of computation. You first make elaborate calculations. When you get them done you go over them and make your curve. This is only a picture of what the figures will show.

Q. Now, this curve really would be determined by the amount of gas manufactured, wouldn't it?

A. Very largely.

Q. You have another curve here marked 7; what does that indicate?

A. That represents the total manufacturing cost, as I believe it will be for the existing plant.

Q. So that in the existing plant it corresponds with curve 1 of the hypothetical plant?

A. Yes, sir; curve 7 shows what I believe will be the total manufacturing cost of the existing plant from the year 1910 up to 1918.

Q. Now, this curve 7 for the existing plant then begins with what year?

A. At the end of 1910.

Q. And with a manufacturing cost of how much?

A. $166,000.

Q. That is based upon what?

A. That is based upon the records.

Q. That is the existing plant?

A. Yes, sir.

Q. Then how do you get your information by which you determine this curve from 1910 on?

A. That is the result of figuring several things. One of
977 the elements entering into that curve is the prospective growth of the city; another is the prospective increase of consumption per capita per annum, and these are compounded in arriving at the total volume of gas to be sold.

Q. Then having the volume, do you compu-e from that the manufacturing cost?

A. The manufacturing cost, yes sir.

Q. These curves get together where?

A. In 1918.

Q. The first of 1918?

A. The first of 1918. It is my belief when you start this hypothetical plant, you conceive it from January 1, 1911. You go through all the periods of construction and business development; but while you are doing this the going plant is naturally gaining in business, the town is growing, the going plant is developing; but the hypothetical plant is overtaking the going plant. The going plant will not be overtaken, however, in point of volume of business, nor increase of revenue, nor operating expenses, until during the year 1918. From the first of January 1918, I estimate that the hypothetical plant will run parallel in all respects to the going plant.

Q. So that the reproduction is completed at that time?

A. Yes, sir. There will consequently be no going value of one plant over the other beyond that period.

Q. From this plat here it appears, from 1910 until 1918 the manufacturing cost of the going plant increased from say $166,000 to $226,000.

Mr. BYERS: The defendant objects to this line of examination and objects to the introduction of any testimony or evidence upon the question of going value, for the reason that it is incompetent,
978 not relevant to the issue involved in this controversy. And we object further to the testimony of this witness as it is now being taken, for the reason that it develops that his testimony and his chart is purely hypothetical, and not based at all upon any fixed or definite facts derived from the plant or property about which this inquiry is being had, and it is pure fiction.

A. Yes.

Q. Now the curve one shows here the gradual increase of the operating or the manufacturing cost rather of the hypothetical plant until its output and its cost shall have equaled the going value?

A. Yes, sir.

Q. Now take up the next curve there, 2 and 8. In the first place state what you mean by manufacturing cost?

A. Manufacturing cost covers all those items which enter into the labor and material of manufacturing gas and repairs of works machinery, maintenance and equipment.

Q. Up to what point?

A. Up to the outlet of the manufacturing plant.

Q. Now, then, curves 2 and 8 represent what?

A. The total distribution cost. The total of all the charges legitimately placed against the cost of distributing gas from the outlet of the manufacturing plant.

Q. Curve 2 begins at 1912; why does it begin then?

A. Because that is when you begin to distribute gas.

Q. Begin to incur expense on that account?

A. Yes, sir.

Q. And when does it reach the same point as the curve 8
979 showing the same item of expense for the going plant?

A. The first of 1918.

Q. And it is intended here to show what that cost would be each year?

A. Yes, sir.

Q. What do you mean by distribution cost?

A. The total of all such charges as are properly made against the cost of distributing gas, as distinguished from the cost of manufacturing or the cost of maintaining a commercial department or a new business department.

Q. It is one of the items of operating expenses?

A. Yes, sir.

Q. Now, curves 3 and 9 represent for the two plants the total commercial expense; what do you mean by that?

A. That is the expense of handling distinctively the commercial features of the gas business, aside from the development of additional business.

Q. And curve 3 begins where, with what item with the hypothetical plant?

A. The first of 1912.

Q. The expense commences at the same time?

A. It commences when you begin to sell gas.

Q. And it coincides with curve 9 at what time?

A. The first of 1918.

Q. When the plants get together?

A. Yes.

Q. And the diagram here shows that expense each year?

A. Yes, sir.

Q. For each plant?

A. Yes, sir.

Q. Now, here they get reasonably close together in 1915;
980 how far apart are they then?

A. They are about $3,500 apart, I would judge from this chart.

Q. What is the expense item for the going plant at that time?

A. The going plant in 1915—for the year 1914 will have spent $58,000.

Q. And the hypothetical plant about $3,500 less?

A. Yes, sir.

Q. Now, curves 4 and 10 represent for the two plants as shown by the key the total new business. What do you mean by that?

A. That is the total, all charges properly entering into the cost of connecting up additional consumers; not only the labor and material in actually making the connections, but all the advertising, soliciting, demonstrating and educational work necessary.

Q. Now I notice that curve 10, which is the unbroken line furthest to the left of this diagram, if I am correct, is practically a uniform curved straight line?

A. Yes, sir.

Q. And it is $29,000 a year?

A. Approximately that.

Q. I notice that curve 4 which is the corresponding item of expense for the hypothetical plant goes out beyond that, is not straight; what does that mean?

A. That means that in building a plant with which to recover or catch up with the business of the Des Moines Gas Company at this time, you would have to spend a great deal of money in your works and distribution system, and if you did not get your business quickly, the loss of interest and low operating deficiencies would be a very serious charge. And to get the entire property on earning basis at the earliest date possible; consequently to reduce to a mini-
981 mum the necessary investment and of course as a consequence to reduce the price, it is necessary to obtain for the product, every possible effort will be made to get the business as quickly as it may be had. That means in a hypothetical plant, you would

spend a very great deal more money per year for the first few years to get this business than the company is now spending after a great many years of continuous effort per year.

Q. When as shown by this diagram would the expense of this account, new business, equal the expense of the same account of the going plant?

A. The first of January 1918.

Q. When would it first equal it?

A. Perhaps I didn't get your question.

Q. My question—of course it would equal it the first of January 1918.

A. For the year 1918 the cost of new business of the hypothetical plant would be the cost of the business of the going plant.

Q. If you turn back to 1912, when would the hypothetical plant first spend as much for new business as the going plant?

A. The hypothetical plant would spend a great deal more money the very first year of gas making for new business than the going plant is now spending.

Q. Would it continue to spend more until 1918?

A. It would, yes sir.

Q. Now, the next curves you have are 5 and 11, indocating a total general expense. What do you mean by total general expense?

A. That is the total of expenses of such nature that they cannot be accurately subdivided, as the manufacturing or distribution or commercial expense or new business.

982 Q. Now take curves 6 and 12, what do they represent?

A. The total operation and maintenance cost exclusive of taxes and depreciation.

Q. Then each of the items represented by the curves preceding 6 and 12, would be included in 6 and 12?

A. If you will add all the other curves together of a kind in a given year, you will arrive at that point of that year.

Q. Your curve 6 begins in 1912 and shows the operation of the hypothetical plant, what it would cost to operate it exclusive of taxes and depreciation, and including maintenance until the two plants get together?

A. Yes, sir.

Q. And curve 12 shows the going plant beginning with 1910?

A. Yes, sir.

Q. Now, I notice when we get up here to 1914 the curve which represents the hypothetical plant, curve 6, goes out beyond, so that the amount of this operation and maintenance exceeds that of the going plant—let me see—until we get back to 1917 or 1918; what is that due to?

A. That is due to the fact that the total expenditures of the hypothetical plant exceeds the corresponding total of the going plant, and principally because of the large amount of money the hypothetical plant would be spending for the quick acquiring of its connected business.

Q. In other words, it reflects the same bulge in curve 4?

A. Yes, sir.

Q. Now, turning to the next plat or diagram which appears at page 95 of your report, I wish you would state whether that is a compilation up to 1910 of the statistics, or of statistics relating to the history of the going plant, which you have utilized in
983 making your estimates which are shown in the preceding diagram.

A. It is.

Q. This is a little more complicated—there are some rows of figures here—for instance, we begin with population on the left hand side of the plat; this shows the population of Des Moines from what time?

A. From 1889 until 1910, as obtained from the records and projected up to the first of January 1918, on my assumption.

Q. What use do you make of this history of the population, beginning with some twenty-three thousand in 1880 and running up to eighty-six or eighty-seven thousand in 1910, in projecting that curve on to 1918?

A. It is necessary to have some clear idea as to the amount of gas you will have to make in any given year, other conditions being equal, in order that you may arrive at the cost of manufacturing and distributing such gas. You cannot make an intelligent estimate as to the probable future sales of the company without having studied the past growth of the city, and the growth of sales per capita per year in that city, because you have to extend both the curve showing the population of the city and the curve showing the sales per capita per year, in order that you may compound the two to arrive at the amount of gas which you will be able to sell.

Q. That is because as the population increases, the amounts of the gas sold will increase naturally.

A. Yes, the amount of gas sold will increase because of the increase of population, but will also increase because up to a certain point in a given community there will be an increase of sales per capita per year without an increase of population.

Q. You estimate what the probable increase of population will be by studying the growth of the population for the preceding
984 thirty years?

A. Yes, sir.

Q. Now, referring to this population curve, how would you ascertain the population of Des Moines at any given time here?

A. The population for the past has been obtained from the federal census; and between the dates of the federal census from such other authorities as we found to be reliable.

Q. The state census?

A. The state census and the school census.

Q. Suppose I wanted to read this diagram and I wanted to get the population in 1903 as shown here, how would I go at it?

A. You would read along the bottom of the line year, until you came to 1903; and then you follow 1903, the vertical line; until you

cross the curve marked population; then you would follow back to the left of the horizontal line until you came to the row of figures following the word population at the left, and the horizontal line you are following on that you would find 70,000 which was the population of Des Moines in 1903.

Q. That is the way you would obtain the population for any given year?

A. Yes, sir.

Q. Now, the next thing I find, working from the left to the diagram, total sales, in M cubic feet. What does that mean?

A. In thousands of cubic feet.

Q. The total sales are shown by what curve.

A. They begin at the last line on the year 1888.

Q. How is the curve marked?

A. It is marked total sales, after you get over here a ways where there is room for the words, about 1904.

985 Q. And that means total sales what?

A. Total sales of gas within the city of Des Moines alone.

Q. By what plant?

A. By the Des Moines Gas Company.

Q. How did you obtain the information necessary to make that curve?

A. From the records of the company.

Q. You have also here sales per capita, population, per mile of main, population per meter, number of miles of main and number of meters; now you have your total sales from the records of the company up to when?

A. Up to and including the year 1910.

Q. Now what factors did you use in making your estimate of the fuutre sales up to 1918, as they appear here by the dotted or broken line?

A. First I found, by dividing the population into the total sales what the sales per capita per year have been. They are shown on another curve; the sales per capita are worked out up to the end of the year 1910. Now from the population, the history of the growth of the city, I have extended the curve to show what I believe will be the growth of the city of Des Moines during the next seven years or eight. From the sales per capita curve I have made extensions showing the increase in the amount of gas to be sold per capita per year, and on multiplying the population of the city at any year in the future by the sales per capita, which I estimate will have been attained at that time, I arrive at the total gas sales for that year.

Q. Now I think the next thing referred to is the sales per capita in cubic feet per annum. Now they are shown by what curve?

A. By the curve marked sales per capita.

Q. And it commences when?

A. It commences in the year 1888 and is the second line
986 from the bottom.

Q. And down to 1910 upon what data or information is that curve based?

A. The records of the company.

Q. And you have projected that by a dotted line up to what time?

A. 1918.

Q. Upon what do you base your conclusion what the sales per capita will be up to 1918?

A. Upon the knowledge of what the sales per capita of a number of cities of similar size have been and are today, and a knowledge of the growth of the sales per capita in a given community.

Q. Do you take into consideration your knowledge of the character of the city of Des Moines or anything of that kind?

A. Yes, sir.

Q. And you would ascertain the amount of the total sales at any time and the amount of sales per capita at any time by simply taking the time and from the bottom of the map reading back to the column on the left containing the figures of sales per capita?

A. Yes, sir.

Q. Now, what does the curve that is marked total meters mean?

A. That shows how many meters were in use in the city of Des Moines at the end of a given year.

Q. And begins with what year?

A. Begins on this chart with the year 1886.

Q. And up to and including the year 1910 that is predicated upon what?

A. The records of the company.

Q. And you have then projected that basing it upon the general history of this plant and your knowledge of the business?

A. Yes, sir.

987 Q. Now, the next column at the left of this diagram is miles of mains. You have here shown the number of miles of mains for what period?

A. Beginning with the year 1888.

Q. And continuing?

A. Up to and including the year 1910.

Q. That curve is based upon what data or information?

A. The records of the company.

Q. Now the next thing here is sales per meter; that is in cubic feet I believe?

A. Yes, sir.

Q. You have here a curve that is marked sales per meter near the bottom of the plat, beginning when?

A. 1888.

Q. And continuing to what time?

A. 1910.

Q. That is, up to and including 1910 predicated upon what?

A. The records of the company.

Q. Have you projected that curve or not?

A. I have.

Q. And of these two that are projected near the bottom of this plat here, it is the upper one?

A. Yes, sir.

Q. What were the sales per meter in 1888?

A. 24,500 cubic feet per year.
Q. What were they in 1910?
A. About 26,000 cubic feet.
Q. The next thing here is sales per mile of main; that is in thousand cubic feet instead of cubic feet?
A. Yes, sir.
Q. Where does your sales per mile of mains appear?
988 A. That is the third curve from the bottom, beginning with 1888.
Q. Now beginning in 1888, up to and including 1910, what data has that curve been based upon?
A. The records of the company.
Q. Have you projected it?
A. No, sir.
Q. The next curve is, population per meter; that begins up at the top here?
A. That is the highest curve on this chart.
Q. At the left hand side it is the highest?
A. Yes, sir.
Q. What was the population per meter *when* that begins?
A. In 1888 there were over thirty-three people for each meter in use in the city of Des Moines.
Q. What is the present population per meter?
A. In 1910 there were less than 4.3 people for each gas meter in use in the city of Des Moines.
Q. You have projected that curve until 1918?
A. Yes, sir.
Q. Now, the next *curve* here—referring to the figures on the left, population per mile main, that also begins near the left hand upper part of the plat?
A. Yes, sir.
Q. What was the population per mile main *when* that curve begins in 1888?
A. About 18,600.
Q. You say thousand?
A. I am wrong. 1,860, as closely as I can read it.
Q. At the end of 1910, what was the population per mile main?
A. 470, approximately.
989 Q. Now, referring first to these curves up to and including the year 1910, I wish you would state whether they correctly summarize the facts as to the matters to which they relate, as shown by the company's record?
A. Yes, sir.
Q. Of course the population is not shown by the records?
A. No, that is shown by other records though that are available.
Q. Now then, so far as you have projected these curves up to 1918, please state whether you are satisfied in your own judgment or not, that the results as indicated by the projected curves are substantially accurate?

Objected to on part of defendants as incompetent and immaterial.

A. I am satisfied that these projections are substantially what will be found, and the basis of my confidence lies in the fact that curves of this sort are regularly used by banks, bond houses, investment concerns of all kinds, when they take over gas properties. They base their investments upon such extensions as these. They won't go into an investment of the gas business until they find out what that property is capable of doing and why. Nobody can tell that without having made curves of that sort.

The defendants move to strike the answer as incompetent, immaterial and not responsive.

Q. What is the fact as to whether estimates and curves of this sort form the foundation for the additions which are made to gas plants from time to time?

A. They do. And for the determination of what the character of these conditions should be; how great they should be. Take holders, for instance, mains, extensions and things like that.

990 Curves of this nature are used and are essential in determining what the future investments should be, made in properties of this sort; the kind and the scale of such investments, as well as the time at which such investments should be made; all of those things are determined from curves of this sort.

Q. So that if I understand you, the estimates you are using here in this computation are of exactly the same character as the estimates which bankers and investors are using today as the basis of investing money in these plants?

The defendants interpose the same objection last made and that it is leading.

A. Yes, sir.

Q. Now, then, going back to the plat, there is to me a very interesting curve here at the right hand side, marked total sales of the hypothetical plant beginning in 1912 and going up almost straight very rapidly and then gradually until it meets the total sales of the going plant; what does that curve represent?

A. It represents the growth of the past of the hypothetical plant, and by comparison with the corresponding curve, marked total sales of the going plant, will give very clearly the idea as to the rapidity with which business would be piled on to the hypothetical plant, in order that the investment might be maintained at a minimum and the consequent selling price of gas be made at the minimum.

Q. To get this a little more in the concrete—you have estimated I believe—you conceive the idea of this plant in 1911; and you begin the manufacture of gas in 1912; now when did you have your hypothetical plant completed?

A. The construction is completed at the end of the year 1914.

Q. Now at that time, by the time your hypothetical plant is completed, how far is it behind the going plant in the amount

991 of gas sold?

A. At the end of 1914 the hypothetical plant will be selling approximately 460 million cubic feet of gas; the going plant at

that same time will be selling in my opinion, 650 million cubic feet of gas per year.

Q. You estimate by the time the hypothetical plant is completed it will be selling nearly three fourth- as much gas as the going plant?

A. Yes, sir. The hypothetical plant I estimate would at the end of the year 1914 be selling almost as much as the going plant is now selling.

Q. Now, there is another curve here—the sales per capita of the hypothetical plant—which is just to the right of the total sales of the hypothetical plant beginning with 1912, at the botom of the plat, that represents what?

A. That represents the amount of gas you would be able to sell per capita per year during each year indicated, and is arrived at by dividing the total sales by the population for that year.

Q. Now that of course means low sales per capita while your plant is beginning and rapidly becoming higher?

A. Yes, sir; I have allowed there final sales per capita that is materially in advance of the present sales per capita.

Q. What are your sales per capita estimated in 1918?

A. Almost 7,300 cubic feet.

Q. Now, finally, there is a little curve here beginning with 1913, just below the word- total sales hypothetical plant, that is what?

A. That is the population per meter of the hypothetical plant.

Q. And is obtained how?

A. By dividing the total population at a given year by the number of meters it is estimated there would be in use in the hypothetical plant at the end of that year.

992 Q. Of course, that, as you begin to install meters is high and works down?

A. Yes, sir. You get another idea here how rapidly a hypothetical plant picks up business, comparing the short curve with the long curve at the top of the page, until we get down to the present small number per meter, in five years; whereas the existing plant required from 1888 to 1910 to make a correspondingly low point.

The MASTER: What do you figure the present production of the gas plant?

A. A little over 525 million cubic feet.

The MASTER: The increase you figure there is due to what?

A. To the prospective growth of the city and the prospective increase of sales per capita.

The MASTER: Now this increase is figured from the past?

A. It is based on the history of the company. I can refer now, if you wish, to the records and show what the increase in the last several years has been. That is an increase that may reasonably be expected.

Q. These curves here on page 95, showing the total sales will show the increase or decrease, whatever it is, each year, since 1888, of the present company would it not?

A. Yes, sir.

The MASTER: That 525 million is about a six per cent per annum increase?

A. Yes, sir, for the next seven years, I have estimated about forty

per cent, which would be a trifle under six per cent for the length of seven years, beginning with 1911. For instance, I estimate that the sales in 1917 of the going plant will be 735 million—approximately a forty per cent increase.

Q. Turn to the next plat here, that shows what?

993 A. That shows the history of the company in matters more directly connected with money.

Q. Well, you begin at the top here with the gas sold by the company and to the left of that you have the net selling price as $1.70 and then this curve runs down in two curves there; what does that mean?

A. That curve with the three arms means that in the year 1895 there were three prices for gas. The net selling price for gas used for illuminating purposes was $1.70; the net selling price of gas for fuel purposes, on consumption less than 10,000 per meter per month was $1.50; the net selling price for gas for fuel purposes over 10,000 per meter per month was $1.25. Those three prices were combined at the end of '95, and one price of $1.30 was established which was maintained for one year. Then the price was dropped to $1.25, and this price was maintained for two years, when a drop to $1.20 was made, and this was maintained for two years; and then it was dropped to $1.15 and this price was maintained for three years; then it dropped to $1.10 and one year later it went to $1 per thousand, which is the rate which has since been maintained.

Q. So beginning with the three arms we go down by steps showing the net selling price?

A. Yes, sir.

Q. Then there is another curve at the left there—revenue per thousand cubic feet?

A. Yes, sir.

Q. That indicates what?

A. That indicates the actual income per thousand cubic feet of gas sold and is ordinarily somewhat higher than the net selling price, because the gas is sold at a gross price above the net

994 there being a penalty or discount, as you may call it; this discount is thrown off in case you pay your bill on or before a certain date. A good many people fail to do that and they have to pay the penalty; that brings the revenue per thousand cubic feet somewhat above the net selling price per thousand cubic feet.

Q. This curve marked—revenue per thousand cubic feet—begins about the middle of '86 and shows the actual revenue per thousand cubic feet from that time down to 1910?

A. Yes, sir, from the middle of the year '86 to 1887, the revenue per cubic feet was about $1.95. Now the corresponding figure for the year 1910 was a trifle over $1.

Q. Now the next curve is the revenue per mile of main; that begins when?

A. That begins between the year 1887 and 1888 at about $32.

Q. Not $32 per mile of main?

A. No, the revenue per mile of main, no. It is almost, about $3,200, there is a misprint there.

Q. That reached a minimum in 1898 of what?

A. About $1,800.

Q. And in 1910 it was back to about where?

A. $2,800.

Q. Now, as extensions of the plant are made from time to time, for instance, suppose this year the company should lay fifteen or twenty miles of main; the next year it should not lay any; the year after it should lay quite an amount; how would that effect this?

A. That would produce the irregularities of the curve shown here. It is impossible to maintain a uniform curve and the revenue per mile of main, because prudence in the investment of your money will demand that you make extensions in certain minimum
995 amounts. You can't come along and add a hundred feet at a time without increasing your investment in a way not warranted.

Q. It would be an extravagant way of making extensions?

A. Yes, sir; it is cheaper to run more pipe at a given time and pay interest on the additional investment, than to wait a while and go back and do this little job by itself.

The MASTER: Dependent, of course, on the future demand of your customers?

A. Yes, sir; looking to the future, of course where you have reason the town is growing.

Q. The next curve is the revenue per meter. That began with what in 1886 and 1887?

A. That began at about $65.

Q. And where was it in 1899?

A. At about $26.

Q. How does it stand today?

A. About $26 or $27.

Q. There have been fluctuations between this as shown by that curve?

A. Yes, sir.

Q. The next curve I think is the revenue per capita, which begins between 1887 and 1888; taking that out to 1910—what was the revenue per capita back there in '87 or '88?

A. About $1.70.

Q. And that is about what now?

A. About $6.15.

Q. Since when has there been a gradual increase in that?

A. The lowest point of which we have a record, between 1888 and 1889, the revenue was a trifle over $1.50—no in 1892 it was a trifle less than $1.50 about $1.45. Since then there has been more or less of a consistent increase up to the present.

996 Q. Now the next curve is marked gross revenue actual; you have taken that from the middle of 1886 or 1887?

A. From the middle of 1887.

Q. And that shows what?

A. That shows the total money received by the company up to 1910.

Q. Your last curve is what?

A. Total operating expenses of the company, including taxes, but

not including depreciation, from the middle of 1887 up to the end of 1910.

Q. Now referring to those curves generally. I wish you would state where you received the information, from what sources you derived the information from which these curves are made up, up to and including 1910?

A. I have asked the officers of the company to supply me with this information up to 1910.

Q. That is based upon the records of the company up to that time?

A. Yes, sir.

Q. You have projected some of those curves up to 1918; for instance revenue per capita, gross revenue and the operating expense and the revenue per meter?

A. Yes, sir, all the extensions beyond 1910 are mine, as based on the history of the company and on my own calculations.

Q. And what is your judgment as to whether they with substantial accuracy show what the result of the operation will be?

A. I believe they do.

Q. Now, you have here a curve that is entitled, gross revenue hypothetical plant, that begins when?

A. That begins with the beginning of 1911.

Q. Well, look at it?

A. At the end figures of 1910.

997 Q. Now that plant began operating when?

A. In 1912.

Q. How did it get any revenue before it began to operate?

A. This revenue is the credit which has been made to the hypothetical plant, thereby reducing the going value, because of the fact that the man who is to build this plant must have the money with which to build it, and having the money and being unable to use it all, he is certainly entitled to interest which he would draw on that money while waiting on the construction.

Q. Then during the period between 1910 and 1912— I am using 1910 instead of first of January 1911, to fit the figures here—what this curve represents is the revenue in the way of interest on uninvested capital?

A. Yes, sir.

Q. Why does it run down in 1912?

A. Because the amount creditable in 1912 is less; the money has been used in the plant.

Q. Now taking this curve from 1912 showing the gross revenue of the hypothetical plant on page 96, how does it compare with the curve showing the sales of the hypothetical plant on page 95 of your exhibit?

A. They all agree.

Q. In other words, this revenue is the revenue derived from the business indicated by the total at 95?

A. Yes, sir.

Q. And you have shown also here an estimate of the operating expense of the hypothetical plant?

A. Yes, sir.

Q. Now, as to the actual plant you show here operating expenses actually including taxes, but not depreciation; what is the
998 fact as to whether that is true or not?

A. In my projection I have included depreciation in both plants.

Q. And this period here where the operating expense of the hypothetical plant on page 96 of the pla-t runs above the curve, corresponding curve for the going plant is explained, as you explain it, on the other plat by the abnormal expenses of acquiring new business?

A. Yes, sir.

Q. I wish you would state whether in making your estimates which are show upon the plat to which I first called your attention, which appears on page 94, you took into account all of these historical matters which are shown on the other two plats, which I have referred to as on page 95 and 96 of this report?

A. I did.

Q. Now what did you do; I wish you would explain to the Master what care you took, what you did in order to determine just how much money would be expended in each year and how the progress of the construction of the new plant would go in each year in connection with this matter?

A. It is important to note just how this work would be handled, not only that you may make your plans and get your materials in proper sequence, but that you may know beforehand what your total tax during construction will be and what your loss of interest during construction will be. So the first thing we did was to take a large map showing all the street mains in the city and asked the Gas Company to divide that system into three districts. We took three districts, because one-third of the total street main system here is about all you would be warranted in laying in one year. If you attempted to lay more than that it would be an extraordinary expense, and you can lay one-third economically. Then we
999 asked the engineer of the Gas Company who is very familiar with the local conditions, to work out on that map for us the three areas which would be represented, which would approximately represent the same amount of work in the laying of street mains. Then we asked the Gas Company to take all the meters within each of those districts, and tell us how many meters of a given kind there were; what the average annual consumption per meter was at this time in each of those three districts. That was very important because the districts are different; the amount of consumption of gas per meter in the districts varies, and as soon as we were coming into these districts, one at a time, it is essential that we know the actual consumption in that district before we can determine the acquired given amount of business in that district.

Q. Referring to the plat, please state whether or not these districts are there indicated and how?

A. District # 1 is the district we would naturally supply first, because you go through it to the third district. Number two would be next; you would have to go through it to reach district three.

District number one is the down town commercial district. Number two comprises the principal residence territory and rather closely built up; district number three is the outlying loosely built territory which you would naturally go to last. Now having the three districts laid out, the maps were again scaled to find how many feet of each kind of existing main under a given pavement were found in each of these districts, and the first tables I have show these amounts. They also show the net construction.

Q. You mean the table headed as assumed construction
1000 distribution system, mains, district one; that is page 97 of Exhibit 20 of your report?

A. That page and the page following show in detail the total net construction cost and the net construction cost plus engineering, etc., of the mains to be laid in that district in that year. The following page, 99, shows the corresponding information concerning the mains in district number two, which would be laid the following year, 1913. Page 100 shows the corresponding information concerning the mains to be laid in district number three during the year 1914. Page 101 gives a summary of the preceding figures as to mains laid.

Q. This page, 101, shows the aggregate amount on account of mains which would be spent in each one of the three years?

A. Yes, sir.

Q. Let me ask you another question—and you needed this information for what purpose?

A. To find what the taxes would be and what the loss of interest would be on the investment you are making in the hypothetical plant.

Q. What bearing would it have on the interest earned by unemployed capital?

A. It has a very direct bearing. The hypothetical plant is credited of course with all the interest it can earn on the money which is not needed. Then you have got to know when that money will be required, because at that time that money comes out of the bank and goes into the plant.

The MASTER: If it was all reproduced at once, that would eliminate the question of interest and taxes?

A. Oh, yes sir; if you could build it at once there would be no taxes and no loss of interest.

1001 The MASTER: The plant as it now exists pays its taxes and it is allowed out of its income?

A. Yes, sir.

The MASTER: The same as with the question of interest?

A. Yes, sir.

Q. Did you take into account the tax which a going plant pays in making these computations?

A. No, sir.

Q. In your computation of the going value?

A. They are not in the hypothetical plant. In the going plant I have not allowed the amount of tax as shown by the Company's books, because I do not believe the company is paying as much taxes as it should.

The MASTER: That is its good luck?

A. I cannot allow it in my report.

The MASTER: To that extent the taxes are an asset rather than a liability?

A. To that extent.

Q. Now, then, taking the next page, you have made there, have you not, a like computation showing when the money would be expended for service, on page 102?

A. Yes, sir.

Q. You don't have anything there in 1911?

A. No, services are laid in 1911.

Q. And this is continued on the next page with a summary of the mains extended in these various districts?

A. Yes, sir; these summaries of course give the figures corresponding with the figures appearing in the reproduction cost of the existing plant for that corresponding amount.

Q. On page 104 have you the corresponding information
1002 concerning the installation of meters?

A. This page covers each of the three districts to be installed during the years 1912, 1913 and 1914 respectively.

Q. What have you on page 105?

A. That is a chart showing the year during which the expenditures would be made and the amount of such expenditure.

Q. Now, take first your 1911; you have various items, organization and legal expenses, I see.

A. Yes, sir.

Q. Now you have under the head of taxes nothing?

A. No tax during 1911.

Q. Then you have—what is your next item there?

A. Loss of interest for one half year, and the amount $760.

The MASTER: Figured at what rate?

A. Six per cent.

Q. That is computed on what amount?

A. The total amount of money to be spent during 1911 under the head of organization and legal expenses I estimate at $25,334.

Q. But that amount would be spent during various periods throughout the year, so that at the end of the year you would have equivalent to one half of this amount invested for the full year. I have therefore allowed a loss of interest for one half year at six per cent per year, making a total of $760 which added to the $25,334 gives $26,094, reproduction expenditures for the year 1911 under the head of organization and legal expenses.

Q. Then it is figured on that one item—organization and legal expenses.

A. Yes, sir. I might explain here—if you will take the totals shown under the years 1911, 1912, and 1913 for the organ-
1003 ization and legal expenses, without any additions for taxes or lost interest, you will get the total which I have previously shown in my reproduction values.

Q. You take up what next for 1912?

A. Those items under the same head of organization and legal

expenses, which I estimate would be called for during the year 1912.

Q. What is your item of tax there for 1912?

A. The taxes of 1912 are based upon the investment of the previous year, for the full year of 1912, and upon the investment made during 1912 for one half of that year, making a total of $793.

Q. And your interest includes what in 1912?

A. The lost interest for 1912 covers lost interest on the full amount represented in the year 1911 plus interest for one half year on the amount expended during 1912.

Q. In other words what had been invested in 1911 was in for all of 1912?

A. Yes, sir.

Q. And what was invested in 1912 you treat as the 1911 investment?

A. Yes, sir.

Q. You have gone on in the same way and computed the investment on organization and legal expense for 1913?

A. In 1913 I have charged only one half lost interest and taxes, because during that year the plant begins to make gas. The other half of that charge has gone against operation. This first half went against construction, and the other half against operation and remaining against operation for all future time.

Q. So that to that extent you have decreased your investment of your reproduction cost?

A. Yes, sir.

1004 Q. The next item you have is real estate?

A. Yes, sir.

Q. You have treated that in the same way, showing the amount of the investment, lost interest and taxes in the various years?

A. Yes, sir.

Q. Now the next item is buildings, with reference to buildings you have shown the amount expended each year, with taxes and interest treated the same way?

A. Yes, sir.

Q. Then you have taken up each item of the works equipment in the same manner?

A. Yes, sir.

Q. Showing the year in which the expenditure is made?

A. Yes, sir.

Q. And that goes over into the next page, 106, near the bottom of that, you reach the distribution system?

A. Yes, sir.

Q. You treated that in the same manner?

A. Exactly; except it runs over into 1914 and does not begin until 1912.

Q. Then your analysis of the expenditures with reference to the year is completed on page 107 of Exhibit 20?

A. Yes, sir.

Q. And these aggregates include total expenditures you computed as necessary to reproduce this physical property?

A. Yes, sir; you will find at the bottom of the page the total of the above expenditures for each of the years.

Q. I wish you would turn to the next page, 108,—assumed acquisition, hypothetical plant; explain it fully and state the reasons for making this calculation?

1005 A. A while ago I referred to a map of the city which was divided into three districts, number one, two and three. The number of meters in each district was actually counted by some of the clerks in the office of the Gas Company, and it was found that in district number one, which is the district we would first go through, contains 4,995 ordinary meters, and 4,506 prepayment meters. It is also learned from the records that the actual average consumption per meter per year in that district was a certain specific figure: I don't recall it now, but which I have in my records. The first of January 1911, the idea of rebuilding this plant is conceived; but there is no working distribution system until 1912; at the middle of 1912 I estimate that in district number one there will have been connected fifteen per cent of the number of meters now in that district; that is by now I mean the first of January 1911. In other words, that by the middle of 1912 there will have been connected 749 ordinary meters and 676 prepayment meters.

Q. Referring to this page to identify that, those figures appear under what?

A. Under 7-1-12.

Q. That indicates the date?

A. Yes.

Q. And aver. 15?

A. That means average fifteen per cent the middle of the year.

Q. And following that is the specific number of meters?

A. Yes, sir. Now jumping forward one year, 7-1-13, I estimate by that time 80 per cent of the total number of meters in that district will have been connected up. Now gas is being sold in district number one, but a meter newly installed does not pass as much gas per year as a meter that has been in use for a long time, be-

1006 because the consumer has not taken on all the appliances for the burning of gas. In other words, a town selling gas for ten years will have a larger consumption of gas per meter than one that is selling gas only one year. People start out with one device for the consumption of gas and from time to time add additional devices. I estimate it would be impossible by the middle of 1913 to get more than 45 per cent of the going plant's consumption per meter on each of the meters connected in district number one. Forty-five per cent of that business on the number of meters which I estimate could be connected at that time would give a consumption in that district number one for the year 1913 of 153,945,000. cubic feet. Now during this year we have not worked district number two and of the total number of meters in that district we will have by the middle of the year placed thirty per cent.

Q. Where does that appear?

A. Over in the same column, opposite district number two. By the middle of the year 1913 we could have placed in district number

two 897 ordinary meters and 978 prepayment meters. On the meters there installed the consumption for that year I estimate will be 22½ per cent of the present consumption per meter in that district, and that would result in sales of gas for the year 1913 in district number two of 39,186,000 cubic feet, which added to the sales of district number one for the same year would give you the total as shown in the bottom line, 193,131,000 cubic feet for the year 1913 in the hypothetical plant. Now the same method is followed through each of the districts through each of the following years, and the totals in the bottom line are arrived at exactly in the same way, by the additions of the sales obtained by this method in
1007 each of the districts for the given years, I arrived for the year 1917 at a total sale of 731,876,000 cubic feet of gas for the hypothetical plant.

Q. Now let me ask you one or two general questions. In district number one you began in 1913?

A. Yes, sir.

Q. And you sell forty-five per cent of the going plant's output through the same meters?

A. Yes, going plant's output per meter.

Q. And the next year it amounts to 82½ per cent?

A. Yes, sir.

Q. And 92½ the next year?

A. Yes, sir.

Q. And then 2½ per cent, and 2½ per cent more of the going plant?

A. I estimate that in district number one through these meters we will sell in 1917 as much gas per meter as is now being sold per meter in that district.

Q. At first your percentage increased very rapidly?

A. Yes, sir.

Q. And is slow in filling up the last five per cent?

A. Yes, sir, that is because of the fact that the gas appliances first installed is the gas range and it represents a very large percentage of the total average consumption per meter.

Q. I will ask you Mr. Lea, whether this curve I called your attention to on the sales of the hypothetical plant which appears on the second chart on page 95, you made all these computations had those meters counted, and estimated your construction and so on in order to obtain that data shown on that curve?

A. Yes, sir; that curve is made from these figures.

Q. As to the various items the amounts shown by that
1008 curve will correspond to your computation?

A. Yes, sir.

Q. Now before you could compare these two plants during the period of reproducing the business it was necessary to have what in addition to the sales of gas?

A. I had to know what it was going to cost to manufacture, not only in the going plant but in the hypothetical plant. So I first worked out a series of tables showing the operation and maintenance

cost per thousand cubic feet, cost in total dollars for the going plant for each year from 1911 to 1917 both inclusive.

Q. I wish you would refer to pages 109 and 110 which are headed operation and maintenance going plant in your report Exhibit 20 and state whether these are the detailed estimates which you made of what it would cost in getting the plant in its operation and maintenance during this period?

A. These are my detailed estimates of the cost I would expect the Des Moines Gas Company would have during the next several years for each item indicated.

Q. You have taken these up by each item that goes into the cost of the manufacture and distribution of the gas?

A. Yes, sir; manufacture, distribution, commercial expense, new business and general expense.

Q. What is the fact as to whether that is the manner in which these accounts are ordinarily analyzed and distributed?

A. It is the customary method of analyzing costs.

Q. Now you have at the bottom of page 110 total operation and maintenance for each year and then you have total operation per M accounted for?

A. That means total operation maintenance per thousand
1009 cubic feet accounted for.

Q. What does accounted for mean?

A. When the gas leaves the plant it contains still some water vapor and a few other vapors which will condense at various points in the street main system and is taken out through the drip pots; that reduces the volume of the gas and leaves us with less than we started with. Besides from some joints leaking or an occasional break in the street main or service, some gas will be lost through that sort of leakage; and the meters placed in the houses of consumers all through the city, as they get older, tend to register less than they actually pass which again tends to increase the amount of gas which we are unable to account for?

Q. What does accounted for mean?

A. That added up with the total of the readings of the meters used by consumers and an estimate of the amount of gas used by the street lamps and adding the amount of gas used in the office and works, to get a total, and this total is subtracted from the amount of gas shown by the station meter at the works as having left the plant, and the difference is the gas unaccounted for, usually called leakage, but it is not actually all leakage; part of it is.

Q. I notice this total of operation and maintenance per thousand accounted for gradually decreases a little?

A. Yes, sir.

Q. Why is that?

A. That is because I expect the company to reduce its total operation and maintenance cost as the volume of its business increases and there will be some elements of cost which cannot be reduced,
because they will maintain a fixed amount per thousand. But
1010 some of the elements of cost are not affected directly by the increased business, and therefore represent a decreasing cost

per thousand feet. As the business grows the result is a reduction as the years advance to a certain point in the total cost for operation and maintenance.

Q. Now, Mr. Lea, in the diagram or plats I refer to there are various curves showing the estimated operation and maintenance cost of the going plant for these years. I wish you would state whether or not these curves are based upon these computations and whether you believe them to be correct?

A. All of the curves I have shown are based upon my computation and I believe them all to be correct.

Q. It is necessary in order to compare the two plants to also have the operation and maintenance of the hypothetical plant and if so, have you made an estimate of that head of operation and maintenance of the hypothetical plant shown on page 111?

A. I have.

Q. I do not see anything here in 1911 and 1912; why not?

A. Because there are no such expenses in the hypothetical plant during those years. You do not begin to make gas until the year 1913, consequently you would not be warranted in charging any operation or maintenance expense to gas manufacture.

Q. You begin with 1913, and there is a notation of costs twenty per cent above the going plant costs for 1910, which seems to follow down through the various items that you take in getting your cost of manufacturing and distributing, or your operation and maintenance of the hypothetical plant; why do you make that twenty per cent above the going plant?

A. That twenty per cent applies only to those columns to which it is attached. It does not apply to new business nor to expenses generally. I put that twenty per cent on those portions of
1011 the cost, because it is my judgment it will be impossible to begin the manufacture of gas in a plant on this scale under the conditions existing in Des Moines without having the operating expenditures for manufacture and distribution, and for commercial expenses at least twenty per cent higher than the present costs, which of course are the result of long operation with good organization.

Q. Take for instance the volume of business there?

A. That has a very important bearing on it.

Q. What is it in 1913 in the going plant and what is it in the hypothetical plant?

A. The gas accounted for in the hypothetical plant during 1913 is a little over 193 million; in the going plant the gas accounted for during the same year I estimate will be 621 million, over three times as much gas. The going plant I estimate will make over three times as much gas as the hypothetical plant. The hypothetical plant making only one third as much gas, certainly will have costs twenty per cent higher than the going plant on the items I have shown the totals; that is to say, the total manufacturing cost in the hypothetical plant will certainly be twenty per cent higher than the total of the going plant for that year.

Q. Now, in the year 1914, what percentage have you taken as the excess of manufactured gas of the hypothetical plant?

A. 1914 will be the second year of operation. The hypothetical

plant will be getting its organization in much better shape; they will also be making a considerably larger volume of gas. I estimate that year the costs for manufacture for distribution and for commercial expenses of a hypothetical plant will be only ten per cent per
1012 thousand cubic feet higher than the corresponding costs of the plant for the going year 1910.

Q. And then for the year 1915, what basis do you take in the hypothetical plant as compared with the going plant?

A. During the year 1915 the hypothetical plant will be accounting for 619 million cubic feet of gas. During the year 1913 the going plant will be accounting for 621 million cubic feet. I estimate therefore that the hypothetical plant will by this time have such a developed organization that it will be almost able to reach the cost per thousand feet of the going plant during the year 1913, and I have taken for 1915 the hypothetical plant costs under the heads of manufacture, distribution and commercial expense, the same units per thousand cubic feet of gas accounted for as I have for the going plant for the year 1913.

Q. Under the other headings, why did you not take the same units, if you did not?

A. The first other heading is new business. The new business expenditure is one which in the hypothetical plant does not bear a fixed relation in the other manufacturing costs. It is subject to a much wider variation tha*h* the manufacturing cost or distribution cost or commercial expense. You have got an*d* extraordinary condition, having piled on a great lot of business in a very short time, where it is going to pay you to spend a lot of money for new business in order to get a return early established. I have made my assumptions as to new business on the basis that it does not follow a fixed percentage for each of the items indicated.

Q. Now, for the year 1916, you say you take the same costs as for the going plant in 1915, is that the reason you just state in this manufacturing part?

1013 A. That would be the fourth year of operation of the hypothetical plant, and by that time its organization will have been so well developed that its costs have come almost as low as the going plant at that time, but not quite; there will be about a year lag there. I therefore credit the hypothetical plant with the efficiencies and low costs equivalent to those of the going plant for the previous year.

Q. What are the total operation and maintenance per thousand feet accounted for in the hypothetical plant for the year 1913 and so on as shown by page 113?

A. For the year 1913 the total operation and maintenance cost of the hypothetical plant per thousand cubic feet would in my judgment be $1.05.71; for the following year the corresponding figure is 79.33 cents; for 1915 the corresponding figure is 65.5 cents; for the following year 1916 the corresponding figure would be 59 cents, and for 1917 the corresponding figure for the hypothetical plant would be 54.14 cents per thousand cubic feet of gas accounted for.

Q. Now, Mr. Lea, asking you generally, I wish you would state whether all of these computations that you have referred to since

we left those charts or maps or diagrams, have been made for the purpose of enabling you to accurately estimate the matters that are contained in them or used by you in computing this going value?

A. They have. I can go further than that and say, going value has been arrived at previously in a lump judgment; in nearly all cases engineers would say, it is my judgment the going value of this property is so and so; rather than make that one general judgment, I would rather exercise my judgment on the very many details
1014 involved and leading up to a composite judgment. All of these figures are made for that purpose.

Q. Now, after you have these factors, that is, the business of the going plant and hypothetical plant, and your operating expenses for each plant during the period it will be necessary to reproduce the business, how do you proceed to ascertain what the measure of this going value is?

A. By making a comparison of the net operating results of the two plants during the period between the conception of this plant and the time at which the plants will be in parallel operation.

Q. Do you take that up forst on page 114, which is headed hypothetical plant, first trial, etc., as to the amount of going value?

A. Yes, sir.

Q. I wish you would take that, beginning there and explain just what you do and what these various items and amounts set down here are with reference to this computation?

A. This table has seven columns; the first being for the year, the second column is headed total investment made at the end of the year; that amount shown opposite the year 1911, for instance, $279,192, is taken from this construction chart back here, called reconstruction expenditures. If you will look at that chart you will find the total expenses, plus taxes and lost interest for the year 1911 to be $279,192; that is the amount of money which will be called for during the year 1911. From that same chart and the previous records as to the working capital and preliminary organization, we have found the total investment necessary. Now it is assumed that the man making this calculation is considering whether he will buy the existing property or build a duplicate of it. He has the money with which to buy the property; he puts that in the bank he draws on it as he needs money for the building of the hypothetical
1015 plant. But his money while it is in the bank awaiting use is drawing interest. This first table then is an interest table made for the purpose of determining accurately the credit which must be given to the going plant because of this money awaiting investment. The money held for investment in column number two during the year 1911, but not called for during that year, would therefore be the difference between the amount drawn during that year and the total awaiting investment at the beginning of the year. The third column, money withdrawn for construction, corresponds for the first year with the first item in column number one. The second item in column number one is a total of the first and second items in column number three.

Q. The first item in column number three is the investment for 1911?

A. Yes, sir.

Q. And the second in column three is the investment in 1912?

A. Yes, sir.

Q. The second column which is the total investment up to that time?

A. Yes, sir.

Q. That is why it is the sum of those two items?

A. Yes, sir; and that method is followed through each of the years, to find the interest credits we refer back to column number two and we find that during the year 1911 there were left in the bank awaiting investment, but not called for during that year, $2,779,522, on which it would be possible to earn a net return of two and one-half per cent per year, or for the year 1911, $69,488.

Q. That is in what column?

A. Column four. Now, referring again to column number three, showing the amount of money withdrawn during the year, we find that during 1911 we will have to call for $279,192. This
1016 money will be drawn from the bank at various periods through the year; but it is fair to say that the amount withdrawn will average approximately a uniform rate and allowance of interest for a half year withdrawn, but you wouldn't be able to get as much of a return on the money as you would for money left intact throughout the year. I estimate on money you are going to call for some time during the year, you could not get in excess of two per cent; I therefore allowed in column number five, first line, the sum of $2,792, which is the interest on the money withdrawn during that year at the rate of two per cent for one half year. The first column number six, the first item in that column is the total of the first items of columns number four and five, being the total interest with which the hypothetical plant should be credited during the year 1911, because of the money awaiting investment. That plan is followed throughout the table, showing for each of the years proper credit because of money awaiting investment. The following table shows columns number 7 to 16 both inclusive.

Q. That is page 115?

A. On page 115 comes in addition a column showing the gas sales in cubic feet for the hypothetical plant, and a column indicating the years. This table is made up in part from the previous records; for instance, gas sales shown in 1913 are taken from the table called assumed acquisition of business.

Q. This table relates to the hypothetical plant?

A. This is a continuation of the previous table referring to the hypothetical plant. Note the gas sales for the year 1913 in the hypothetical plant will be 193,131,000 cubic feet and the revenue from the sales of gas, the revenue being $1.68/100 cents per
1017 cubic foot, which will amount for the year 1913 $194,444. The interest on the unemployed capital carried forward from the previous page, column six for the year 1913 would be $24,610. The gross revenue of the hypothetical plant therefore the first year

of gas manufacture would be $219,054. The table of operation and maintenance of the hypothetical plant for the year 1913 will be found on the pages foregoing and is represented by the total figure for the year 1913 of $204,186. Now the tax of the hypothetical plant during the year 1913 is charged against operation in part, that is, one half of the taxes chargeable to that year for the hypothetical plant are charged to operation, and the balance to construction, as explained before. But the tax of 1913 includes something more than that. There is a note here "A" showing the taxes which I have charged the hypothetical plant with covering an amount equal to the tax on construction for 1913, plus a revenue tax of two per cent on the gas sold during the year 1913 by the hypothetical plant.

Q. Why do you put that in?

A. Because that is a tax the company has to pay the city on the gas sold. Now, the depreciation annuity for the year 1913 of the hypothetical plant would be $22,444, and that is obtained by using the depreciation factor. The plant is in course of construction at this time and the estimate is to be made on the correct proportion of the plant; you cannot itemize it as to machines. The total operating expense is therefore the sum of the costs of operation and maintenance and of taxes and of the depreciation annuity, and amounts for the year 1913 in the hypothetical plant to $240,618.

1018 Now the gross income of the hypothetical plant for the year 1913, the gross revenue, I find to be only $219,054. In other words, the hypothetical plant during the first year it makes gas will lose money. It will lose $21,564. Its net earnings will be a negative amount. Now, we find the going value at this time, not at some other time, not in the past nor in the future. We therefore have got to reduce*d* the net earnings of the going plant as well as the net earnings of the hypothetical plant to their present worth. If I am going to earn a dollar, one year from now it is worth less to me than five years from now. We therefore reduce each of the future net earnings by that factor for present worth, and the loss during 1913 of the hypothetical plant, of $21,564 is the equivalent today of a loss only of $18,111.

At this time an adjournment was taken until 1:30 P. M.

1019 1:30 P. M., WEDNESDAY, *July* 26, 1911.

HENRY I. LEA continued on direct examination by N. T. Guernsey, Esq., testified as follows:

Q. Mr. Lea, you had just taken up in the computation which appears here on page 119 of your report the year 1913, showing the gross revenue and the items making it up of that hypothetical plant then the total appearing of the items making that up of that plant and the deficit and present worth of that deficit. Will you please continue the explanation of this table?

A. I took first the year 1913 because it is the first year in which gas is being made and sold in the hypothetical plant and you will notice on this page that in columns 6 and 9, that there are credits as shown to the hypothetical plant during the years 1911 and 1912,

although there is no gas being made during that period. Those credits are accounted for in the interest table which is the preceding table where it is shown that in the year 1911 the total interest, column six, which is the sum of the interest amounts shown for that year in columns 4 and 5, is $72,280. That amount $72,280 is carried forward to column 8 where it appears as the total interest on unemployed capital.

Q. How much was that?

A. $72,280. There being no gas sold——

Q. You are referring now to page 115 instead of page 119?

A. Yes, page 115.

Mr. GUERNSEY: I would like to have the record show my reference to page 119 is an error, it should be page 115, I got the wrong page.

1020 A. On page 114 for the year 1911 you will find total interest $72,280. That is carried forward to page 115, column 8, on the line for the year 1911. Interest on unemployed capital $72,280. Now there is no gas being made in the hypothetical plant that year, consequently the only revenue the hypothetical plant has is the revenue from this money which is a waiting investment. The gross revenue is therefore the same as the total of interest on unemployed capital. There being no gas main there is no operation and maintenance expense. As the plant is being built and no gas being made all of the taxes are charged to construction and consequently do not appear here. This applies also the first year on the depreciation annuity. The total operating expense therefore is nothing. The net earnings from column 8 $72,280, and these net earnings are the earnings to be realized at the end of one year, consequently they must be reduced to their worth at the beginning of the year which is the time of valuation. The six per cent factor for present worth for amounts due one year from date is .9434. Applying this factor to the net earnings shown in column 14 you arrive at the present worth of the net future return for the year 1911 in the hypothetical plant of $68,189. Now the second year of operation of the hypothetical plant is followed through in the same manner as the first year with the exception that this year there is a depreciation which can be accounted for and the depreciation allowance for that year is the only operating expense during that year. The gross revenue for that year is as in the year *g*efore, the total of the interest on unemployed capital alone. The net earnings for the year would therefore be the difference between the interest on unemployed capital and the depreciation. The net earnings as shown in column
1021 14 is $44,097. Now the factor for present worth at six per cent on money coming two years from date is .89. Reduce the net earnings shown in column 14 by the factor for two years in advance would give you the present worth of net future returns for the year 1912 on the hypothetical plant of $39,246. Now the operation for the year 1913 I have explained. In 1914 gas is being made as in 1913, but in larger amounts. During the year 1914 the

investment will have been completed, that is at the end of 1914 the total investment in the hypothetical plant will have been made for all of its physical equipment, working capital, organization and legal expenses. During that year there will be no money held for investment as indicated in column 2, the money withdrawn during the year will have been $566,846. There *are* will therefore be no interest carried forward from column No. 2 but from column No. 3, there will be the interest on the amount there shown at 2 per cent for one half year which amounts to $5,668. That is the interest on the amount withdrawn for investment during that year. The total interest in therefore the same as that amount just named. Now going forward again to the year 1914, the next page, the hypothetical plant will account for 460,638,000 cubic feet of gas. The revenue from that gas will be $463,770. The total interest on unemployed capital carried forward from column 6 on the previous page will be $5,668. The gross revenue will therefore be the total amount of the gas sales and the interest shown in columns 7 and 8, or $469,438. The operation and maintenance for the year 1914 of the hypothetical plant will be $365,440 as worked out in detail on previous pages.

The taxes will be $46,830. The taxes for the year 1914 on
1022 the above total are arrived at by taking 2 and one fourth per cent on the construction expenditures for the years of 1911, '12 and '13, minus 18,512 which has already been charged to construction for that year and then adding to that result two per cent of the revenue from gas sales for the year 1914. The result is as shown, taxes for the year 1914, $46,830. The depreciation annuity will have increased because more of your plant will not have been completed and in commission, the total operating expenses as before is the total of the operation and maintenance plus taxes, plus depreciation and for the year 1914 amounts to $445,548. This year therefore the gross revenue exceeds the total operating expenses by $23,890 which is the net earning of the hypothetical plant for the year 1914. Now that amount must be reduced to its present worth and the six per cent factor for present worth of money to be obtained at the end of 1914 is .7921. Therefore carrying this reduction forward into column 16, we find the present worth of the net future return of the year 1914 of the hypothetical plant to be $18,923. Now each of the following years up to and including 1917 of the hypothetical plant is handled in the same way, the same detail being gone through with the proper allowance for each year under each head.

Q. There is one thing there *there* are no entries of these years *19* 1915, 1916, or 1917, shows no credit on account of interest. 1914 did, under column 8?

A. You mean none of the last three years due?

Q. Yes, sir.

A. That is because all of the money which was available at the beginning has been put into the plant or is no longer drawing
1023 interest at the bank.

Q. One other question before you leave that. Why did you use two and one fourth per cent as a basis for getting taxes?

A. Because that is the current tax rate in the city of Des Moines.

Q. Now will you proceed?

A. The following page 116, shows figures for the going plant which correspond with the figures on page 115 in the hypothetical plant. All of the figures shown for the going plant are figures which relate to the city of Des Moines alone, Valley Junction has been excluded throughout.

Q. Now take one of the years there will you please and go through it and explain it.

A. The year 1911 I estimate the gas accounted for in the city of Des Moines will be 5586 million cubic feet. That the population of the city of Des Moines will be 89,000. That the gross revenue will be $561,794.00. That is that the revenue for the year 1911 will exceed the revenue for the year 1910 from gas sales within the city of Des Moines by $33,121. The increases in percentage being 6.2 per cent. This morning your honor, you figured it about 30 million increase and about 6 per cent and 30 million would be approximate to this sum in $33,121. I also estimate that the operation and maintenance of the going plant for this year of 1911 will be $333,828. That the taxes will be $38,581. That the depreciation annuity will be $37,385. That the total operating expenses will be the sum of the figures in columns 20, 21 and 22, for the year 1911 or $409,795. The net earnings will therefore be the difference between the gross revenue shown in column 17 and the total operating expenses shown in column 23, or $152,000. But this
1024 sum is also an amount which is to be realized only in the future and it must be reduced by the six per cent factor for present worth to find out what the earnings for the year 1911 were worth at the first of January of 1911. Applying this factor we arrive at the amount in column 26 of $143,397 as the present worth or worth as of January 1, 1911, of the net returns for the year 1911 of the going plant. Now it is necessary to go through all this calculation for each of these plants for each of the years because we have got to see what the total difference is and I speak there of each of the years 1912, 1913, 1914, 1915, 1916 and 1917, exactly as explained above for the going plant. On the page following, page 117, I show a summary of the two plants, the three columns number 27, 28, and 29. The first column No. 27 is labeled present worth of net future returns of going plant and in parenthesis from column No. 26, referring to the preceding page, column 26, you will find each of the amounts set forth in this column No. 27. The next column 28 contains the corresponding items for the hypothetical plant taken from column 16 of the second page preceding. Column 29 is the difference or rather in column 29 is shown the difference for each year in the earnings of the going plant and the hypothetical plant. Taking the year 1911 for instance the preceding calculation has shown present worth of the net future return of the going plant to be for that year $143,397. Previous calculations have also shown the corresponding figure for the hypothetical

plant to be $68,189. In other words during the year 1911 the going plant would have had at the first of January this year a present worth of net future return exceeding that of the hypothetical plant by $75,208 for the year of 1911. The corresponding
1025 increase of the present worth of net future return of the going plant over that of the hypothetical plant for the year 1912, would be as shown $107,538. Now during the year 1913, the going plant is shown with a present worth of net future return of $154,046 while the hypothetical plant that year will have a loss of $18,111. The amount for the year 1913 appearing in column 29 is therefore in this case arrived at by adding the amount in column 28 and the amount in column 27. In all the other instances of course the amounts in column 28 are deducted from the amounts in column 27 to arrive at the amounts in column 29. Having gone through each of these years in this manner, having arrived at the difference between the present worth of net future returns for each of the years under consideration for each of the plants the sum of these differences is the going value figure subject to one further correction. The total of the items in column 29 would show a going value of $617,666 but that amount should be reduced because of the fact that we must assume that the man who is about to build this property who is to build a duplicate or buy the existing property has enough money to buy the existing property. Since that money or money required to buy the existing property must of course cover going value he should have after consideration of the amounts which we have already accounted for still some money lying in the bank during this construction period which we have discussed and he would have been drawing interest on the money, consequently the apparent going value shown here would really be reduced by the additional credits due to the interest this man would draw on his money through the bank. It is therefore necessary to take this amount shown here and to proportion it
1026 through each of the years considered in order that the hypothetical amount may be properly credited. In other words this will tend to increase the earning capacity of the hypothetical plant and consequently to reduce the going value of the existing plant because it will cost that much less money for the hypothetical plant to catch the going plant. On the page following therefore is another calculation of the interest produced which the hypothetical plant would properly have. You will notice that at the top of this page, near the top of this page in parenthesis are the words second trial, going value taken as $583,000. On the previous page we found an apparent going value of $617,666. Now notice that the hypothetical plant must carry that additional interest on the money laying in the bank, knowing that such credit will tend to reduce the going value of the going plant it becomes a matter then of arithmetic to determine how far the going value has to be reduced in order that the credit or additional credit given to the hypothetical plant will restore the balance, and that is made independently of this sheet. It is a little detail. $583,000 is shown to be the amount which you have been given before which you are

to equalize and the figures shown here are merely in proof of that statement. Now the calculations shows here that the hypothetical plant is the same as previously shown except that the amounts invested during each of the years of course have been made and correspond with the addition of the going value amounts.

Q. I wish you would go into that a little more in detail.

A. In the previous calculation in finding out how much interest the hypothetical plant would be credited with we take certain expenditures for each of the years which we arrived at through
1027 the reconstruction chart or table of reproduction expenditures. Now then having proportioned this apparent going value $617,666 over the several years these amounts are added to each of the years indicated and increased by these respective amounts the totals going into the plant for each of these years. Consequently the interest credit is properly apportioned and worked out.

Q. I am not sure I understand you. Will you let me ask you one or two more questions about that. Your first computation simply includes the expenditures for reproducing what they call the bare bone of the plant, the mere physical property and at the same time this additional money is being expended to reproduce the going value.

A. Yes, sir.

Q. So that you have added in this last table after you have approximated your going value you have added these additional expenditures to the various years?

A. Yes, sir.

Q. Because you must have them to make your interest calculations correctly, both debits and credits.

A. Yes, sir. Now you will see that shown very clearly in the money held for investment in the previous calculation the hypothetical plant in column No. 2 it is shown that no money is held for investment after the year 1913. But with this calculation it allows the additional credit, there is money held for investment in the plant up to and including the year 1916, three years later. All that time the hypothetical plant is being credited with the interest on the respective amounts held in the bank as well as on the amounts withdrawn during the year as in the previous calculation. Now
1028 in the previous calculation the hypothetical plant as shown in column three there was no interest on unemployed capital during either of the years 1915, 1916, or 1917. With the correction we are now going through there are allowances made for interest on unemployed capital during each of the years up to and including 1917. Now the calculation for the hypothetical plant is the only one that is benefited by this change and it is only effected because of the fact that an additional allowance must be made for interest to the hypothetical plant, thereby reducing the going value of the existing plant. I therefore have gone through the calculation for the hypothetical plant on this and the succeeding pages.

Q. Page 119 is the page.

A. 119. This allowance to the hypothetical plant does not affect the calculations of the going plant in the least and this second calculation for the hypothetical plant is therefore to be compared with

the calculation for the going plant the same as the first hypothetical plant calculation was compared and that comparison is shown on page 120 in which we arrive at the actual going value of the existing plant for each of the years 1911 to 1917 both inclusive. The total of these several yearly going values being $583,001.

COURT: If I understand you right you find the difference in the earnings of the plant that is to be constructed from the ground up running up for seven years and the earnings with its increase of the present plant and then ascertain the present value of its difference in the earnings.

A. Yes, sir.

COURT: And that is then what you regard as the going value of the plant.

1029 A. The difference of the totals of these two items for the two plants. For the going plant will during these seven years have earned a certain sum of money more than the hypothetical plant could possibly have earned in catching up with it in that period and the man who is going to build the hypothetical plant or buy the existing plant would be willing to pay that addition and take the existing plant.

COURT: You claim that to be the going value?

A. Yes, sir. That is what a man would be willing to pay rather than build the hypothetical plant and catch up.

COURT: Another question I want to ask, your figuring is all done upon the idea of reproducing the plant from the ground up and that it would take seven years to get a revenue equal to what the revenue of the present plant would be at the end of that seven years?

A. Exactly.

COURT: Would it make any difference now if there was no loss of revenue and this plant could be reproduced instantly, would there be any difference in the present value?

A. There would be a very material difference in the going value if you could reproduce instantly a plant of this kind with its business. It would not have any going value at all. Because if you could reproduce this plant with all its business immediately and I could buy the existing Des Moines Gas Co. for so much money or could duplicate it for a great deal less there would be no object at all in my taking the Des Moines Gas Company. The Des Moines Gas Co. would have no going value.

Q. Now this second estimate or computation proves out a going value within what of the going value which you started with there?

1030 A. $1.00. That is the amount started with on this second calculation which I understand you to mean.

Q. Yes. Now you said that — the result of these additional credits to the hypothetical plant if I understand you? Take this year where there was a deficit and on your first computation which you made for the purpose of getting a basis for this going value that deficit was $18,111 wasn't it?

A. Yes, sir.

Q. And the present worth of it was——

A. $18,111.

Q. After you have made your computation that item is reduced to what?

A. To a minus $11,535. In other words the hypothetical plant will lose about $6,500 less with this allowance than it would before.

Q. So that a man who is determining whether or not he would buy the plant or build one would have to put up $6,500 less if he built the plant instead of buying?

A. Yes, sir. Consequently the going value of the existing plant is reduced proportionately.

COURT: That last column is simply giving the present worth of the income you would have when you got it.

A. That is finding out what you would pay for this dollar today rather than wait a year to get it.

COURT: You go more than a year there don't you?

A. Collect one year for 1911 two years 1912 and so on down. Money you are going to get in 1916 is worth only .6651 on the dollar today.

COURT: You have $49,284 and $975,000. Is that where
1031 that loss came in?

A. That was interest earnings the first year $49,284 and the second year and third year the interest is less again, began to make gas and lost money and that loss is added to the profit of the going plant.

COURT: How do you get the present value as $97,500?

A. That is the difference between the estimated hypothetical plant and this going plant. The hypothetical plant made during that year $156,784 and the hypothetical plant made $49,284 the going plant therefore made $97,500 more than the hypothetical plant and this 97,500 would be the going value of the going plant for that year.

Q. Follow that up for a month Mr. Lee, these two columns, 27 and 28, on page 120 you have just referred to are the present worth computed earlier?

A. Yes, sir.

Q. The present worth computation is made before you get to these columns?

A. Yes, sir.

Q. Now referring to your letter of June 24, 1911, to Mr. Haines which begins this report or precedes it, Exhibit 20, what have you taken there as the going value of this plant?

A. $583,000.

Q. Was that amount ascertained by you in the way that is explained in your report and in your testimony here?

A. It was.

Q. Now I wish you would explain why you adopt this method rather than simply making a general estimate of so much for going value.

A. For the same reason that causes me to go into details
1032 on estimating the building. I can look at a building and form some sort of judgment as to what that building is worth just by looking at it the same as anybody else can, but if I am going to buy that building or if I am going to give a contract to

you to reproduce that building for me, I want to know something about the dimensions, the quantities, the costs of the raw materials entering into that building, before I will take any action I will acquire the information covering these points. I will find out all about the quantities, the local costs and kinds of material, the labor, and all of the elements of cost entering into that building. There will be a great many places in working out the details of those costs where I will have to exercise my judgment as to whether lumber will cost so much or so much, whether labor will be so much a day or so much and I would very much rather have my estimate covering the total reproduction cost of the building based upon my judgment of the many items entering into that building, than to have it based upon one big judgment based on the building as a whole, and this is the method of arriving at my composite judgment through working out the various details.

COURT: Only a matter of judgment and may be varied greatly by future results.

A. Oh yes. This applies only to conditions as they already existed the first of January of this year. The going value might go up or down during the year but at the time of taking the inventory this is what I believe is the true going calue.

Q. Now then Mr. Lea, I wish you would state what in your judgment was the total reproduction cost as of January 1, 1911, of the plant of the complainant, the Des Moines Gas Co. used and useful in its business of manufacturing and distributing gas in the
1033 city of Des Moines, including going a value.

Objected to as incompetent and irrelevant and object to the competency of the witness.

A. $3,641.714.

Q. I wish you would state whether or not you have reached a conclusion as to what was the reasonable actual value of the property of the Des Moines Gas Company in the city of Des Moines used and useful in its business of manufacturing and distributing gas on January 1, 1911.

Same objection.

A. I have.

Q. And what is that value?

Same objection.

A. $3,261,705.

Q. Now Mr. Lea, I wish you would state what difference there is if any in the present actual reasonable value of the property that I have referred to and its value on the 1st of January 1911?

A. There is some difference in value. I understand that some extensions have been made since the first of January but I don't know what they are no- the extent of them. The value today of this property would in my opinion be the value I have shown here as present value as of January 1, 1911, plus the extensions that have been made since that time.

Q. Now Mr. Lea, I wish you would state whether you have made

any examination of this plant with a view to determining in a general way its adaptability to the city of Des Moines and the demands that would be made upon it here.

A. I have.

Q. Please state what your conclusions are as to that matter.

1034 A. Well the plant as a whole it would be rather difficult to discuss in answering that question. You better take it a portion at a time I judge because it is not of the same capacity throughout.

Q. Answer it in your own way. I don't know enough to suggest how to answer it.

A. Well the maximum daily sent-out which has been made here up to date is about two and one fourth million cubic feet. That means that a plant to take care of a send-out having a maximum day of that size should have a capacity of 3 million cubic feet per twenty four hours for short periods. This plant is capable of turning out three million cubic feet of gas a day of twenty four hours for a few days at a time, but it is not capable of keeping up that rate. I would not dare to operate this plant with a demand exceeding 2,400,000 cubic feet per day if I had to keep it up. I would not consider the plant safe for any capacity beyond that as an every day demand and I would not consider it safe for any demand beyond three million feet per day for a period exceeding four days or five in succession. That is due to the fact that the capacity of the generating plant itself is only five million cubic feet per day when all of the machines are in use. Now no conservative operator will try to run his plant at a capacity which requires the use of every machine he has. He must provide for the shu- downs that every plant finds necessary and in this case one of the five water gas sets has a capacity of two million cubic feet. That is a very good size set for a plant of this capacity because it is very economical but if that set happens to be out of commission then your net effective working capacity at the maximum production is only three million cubic feet. Consequently the maximum safe rated capacity of the

1035 generating portion of this plant is only three million cubic feet per day.

COURT: That is it is only the capacity of the weaker plant?

A. It is the capacity of what is 1 ft. after your biggest unit is down. That would be three million cubic feet per day. They have four one hundred and twenty five horse power steam boilers down there and keeping one of these boilers in reserve, for you must always have allowance of at least one boiler to provide for cleaning the boilers, they have an effective boiler capacity of 375 horse power. That is exclusive of the 60 horse power boiler which is used only for the heating of the large holder and could not be used for a supply of steam to the water gas sets. Now 375 horse power in steam boiler capacity is not at all in excess of the demand of this plant even when the large generator is out of commission. In other words, you would not dare to have less than 375 horse power steam capacity to operate this plant when you were being called on for three million cubic feet per day. The boiler capacity is not as great in

its rating as the generators are. Now the generators and scrubbers had a capacity of three million cubic feet per day when they are operated as they now are with a large portion of the gas going into the relief holder before it goes to the condensers. They would be below a capacity of three millions if the relief holder was not used to do a large portion of the condensing work. The plant has three exhausters which may be used for the taking of this gas from the relief holder which are used to push gas on through the purifiers and meter and into the holder. Two of these exhausters have a daily capacity of a million and a half each or three million cubic feet per — for the two. The third exhauster has a capacity of
1036 two and one half million cubic feet capacity per day or a total of five and one half million cubic feet capacity in the exhausters and here again you are compelled to provide for one unit idle because exhausters go wrong, bars get out of line and they must be rebeveled, things happen to the engine and at any time one of these exhausters is apt to get out of commission. Suppose it is the largest one of them, you must in safety deduct two and one half million from the maximum rate of capacity or effective safe working capacity and of the exhausters it is again only three million cubic feet per day. But the one thing which you cannot get by in any plant is the purifying plant. You can crowd other portions of the plant, can crowd the boiler sometimes twenty five, sometimes 50 per cent about the rated capacity. Crowd the water gas generators above the rated capacity under some conditions and you can crowd the condenser, but you cannot crowd the purifyer. The purifyer is absolutely limited by the fact that the sulphur compounds cannot be removed from the gas except when the gas is traveling at a rate below a certain specified point. That is because the chemical action which is necessary in removing the sulphur from the gas requires time, requires a proper time for contact between the sulphur and the oxide and you cannot pass the gas through that box any faster when there is only a little sulphur in the gas than when there is a whole lot of sulphur in the gas. You have to pass gas at or below this rate to have action in the purifiers take place and the capacity of the purifiers has been very closely determined in a great many cases and it has been found that with purifiers of this size and with the number and depth of layers of oxide it is possible to use in these boxes that the maximum safe working capacity of these puri-
1037 fiers is only 2,400,000 cubic feet per 24 hours. That is the point at which is determined the maximum safe working capacity of this plant, the purifiers. The station meters are essential in maintaining your records as to gas made and costs of gas made from day to day, but in emergency you could dispense with them without wrecking your company or anything of that sort *of* affecting the public as a shortage of gas would. But the total capacity of the meters all put together, the three of them is only 4,932,000 cubic feet. And the new meter has in its capacity of 3,072 000 cubic feet. Station meters may also get out of commission, the drums are made of light material, sometimes have to be calibrated and sometimes have to be cleaned and if that large meter got out of commission for

any reason the effective storage meter capacity would be only 1,650,000 per day. But I do not consider that as determining the effective capacity of the plant because a man would by passing his meter if he got in trouble with it, he would inflict no troubles on the community and nothing serious with himself for a short period. The payment the company gets is determined by the reading of the consumer's meter. This other meter is used primarily to check up deficiences in the distribution system, to find out whether leakage is increasing and if so the best way to check it, to keep a record at the plant of the quantities of gas made out of given quantities of raw material, so one man's work may be checked against another, in an effort to improve the economy of the plant.

COURT: Does the photometer show continuously the candle power of the gas or only occasionally.

A. It shows only when a man goes in to operate it. That
1038 is done several times a day, I don't know just how many. It is not an automatic instrument, it has to be operated by a man. Now, the only other elements that would effect the capacity of this plant are the holders. The relief holder has 175,000 cubic feet capacity and that is safe for a manufacturing capacity up to three millions per day. It would not be safe for a larger output than that. The storage holder, the small one, has 309,000 and the large one has 1,132,000 making a total of 1,441,000 cubic feet per day and this storage holder capacity would be safe for two and a half millions to three millions per day in a water gas plant. It would not be safe for that capacity in a coal gas plant. The coke shed and the coal sheds and oil storage are also safe for three million cubic feet per day. In other words, it is my opinion that the maximum safe working capacity of this plant would be three million feet per day for a few days or 2,400,000 cubic feet per day as a regular send out. That would show that with a maximum day already experienced of two and one fourth million feet that the plant certainly is not overbuilt and will before long require very important extensions in order to safely and economically take care of and handle increase in gas sales.

Q. Have you given any attention to the general arrangement of the distribution system besides the pipes and things of that kind?

A. I have. I have not made a study of the detail of the distribution system to learn whether there is any particular locality where one sized pipe might better have been replaced with another sized pipe, but I have obtained records showing what the variation in pressure throughout the 24 hours of the maximum days of last year were in many parts of the city, particularly in the outlying sections. That is the first indication we look for when it comes to determining which portion of the distribution system needs rein-
1039 forcement. We put on pressure *guages* which have dials actuated by clock work, they run twenty four hours a day and they indicate with a little pencil arrangement the variations in pressure at all times throughout the twenty four hours as they occur at the point to which the*is guage ke* connected. These *guages* are movable and a man may easily carry one from place to place and a

number of them are being kept in commission moved around from one place to another the year round all over the town. These records are made part of the permanent records of the company and are the guides which the engineer refers to in planting his distribution system expansions. I have seen these charts from many parts of the city for the days representing the maximum send out of last year. These heaviest days, that is the heaviest group of days will come along in the winter near Christmas time and these charts indicate that there is no part of the city—that none of the parts of the city represented by the charts shown me were insufficiently supplied. On the other hand the danger is that you may have too many street mains and this I checked up by working out the average size of street mains now in use in the city of Des Moines. I have made a careful calculation of this matter and find that the average sizeed main in use in the city of Des Moines is not in excess of what we ordinarily expect to find in supplying gas throughout the country.

Q. You have refer-ed to the necessity of surplus apparatus or reserve apparatus so as to furnish a continuous supply of gas. What are some of the practical reasons for this aside from the question of good service.

A. Well the most important consideration is not aside from good service. It is very directly connection with good service and *and* that is a matter of life and death that is involved. If you
1040 operate your plant on so small a margin of capacity that an unforeseen period of cold weather or of dark weather creates a demand for gas which is beyond your safe working capacity, so that any break at the plant will cause the supply of gas to be shut off you then find where you have scattered throughout the entire city in all buildings and homes where gas is used a number of gas jets which were burning at the time the gas was shut off and which of course went out almost immediately after the supply was shut off and which in a great many cases have been forgotten by the people in whose hourses or store- they were. People will have had lights burning in their bedrooms which have been forgotten by them or perhaps gone to sleep with the lights burning. The supply is shut off and the gas goes out. After awhile you come along and turn the supply on again. It would almost certainly be the case that some of these open burners have been forgotten and would be pouring gas out into rooms where people were living and this gas is poisonous. All commercial gases are poisonous they are not made to breathe, they will kill you. You would in all probability have the full responsibility for a number of deaths. That is in my opinion the principal, the greatest point in connection with maintaining a reasonable reserve of capacity, of course you have to have reasonable -eserve for the further fact that your product must be distributed at all times under as nearly uniform conditions as it is possible to reach and that cannot be done if you are working at your maximum capacity at all times.

Q. Do you know during how much of the 24 hours in each day in this plant — is manufactured?

A. I presume the average is 22 hours actual gas making, that is blasting, making the gas and blasting and making the gas that is the average for each machine. If they are running more
1041 than one machine naturally it will overlap and there will be no period in the day when gas is not being made at intervals of a few minutes.

Q. By blasting and making gas you refer to what you describe more in detail some time ago as the fact that the making of gas was intermittent while your generator was running.

A. Yes, sir.

Q. How often during the day is it necessary to shut down a generator?

A. It is necessary to shut down at least every 24 hours and frequently it is the best practice to shut down twice, depending largely on the kind of fuel you are using.

Q. What is the purpose of this shut down each day?

A. To restore the fuel to a good workable condition so gas can be made economically.

COURT: What is the fuel that is used here?

A. Coke at this time. It has to be either coke or anthracite coal and anthracite is too expensive.

Q. Pursuing this digression a little further what kind of fuel is used in the boilers?

A. Steam coal.

Q. That is a local coal?

A. Yes, that is a low grade bituminous coal.

Q. In addition to this shutting down on-e or twice a day to clean the fires that you have referred to what if any necessity is there for shutting down periodically?

A. It becomes necessary to shut down every water gas plant at intervals ranging from sixty to ninety days for periods of five to nine or ten days for the purpose of cooling off the carburetor and super heater, taking out the checker brick with which they are
1042 partially filled and replacing this checker brick with other clean brick. The oil injected into the carburetor with which they are supplied fill the pores of the fire brick with carbon and carbon is a very low heat conveyor and heat won't go into the brick fast enough to meet the demands when the pores are filled with carbon and the brick has to be replaced on that account. It is very important that the brick heat up and give out the heat quickly. Brick is the only thing that will stand the strain and still come within out reach.

Q. What do you mean by come within reach, fin--cially?

A. Commercially, yes.

COURT: What is it the bricks absorb?

A. Carbon. It is supplied by oil to the fire making hydrogen gas and lamp black or carbon and that carbon gets into the pores of the brick and causes it to become so heat cannot get into the brick rapidly nor get out rapidly. The function of the brick is to absorb heat and release it as quickly as possible.

Q. Is it more economic to have a surplus generator capacity or surplus holder capacity?

A. Well the particular plant of course would have to be considered in answering a thing of that sort.

Q. Take this plant?

A. If you were to take this plant and were to provide with the present generator capacity enough holder capacity to carry you over such times as you might expect to have to tide over and if on the other hand you could put in water gas generating capacity to tide you over that same time, requiring no additional investment in the balance of the plant the installation of generating capacity
1043 would be very much cheaper than the installation of the holder capacity——

COURT: I think you gave the proportions of the gas, but I have forgotten.

A. The proportion of the gas leaving the generator you mean. There are about equal volumes of carbonmonoxide and hydrogen at that point, they are about five per cent each of the total volume of gas leaving the generator. An amount -qual to that of carbon monoxide and hydrogen is added in the carbureter from the oil so the finished product has about one third of its total volume made up with gases from the oil. These proportions of course will vary with the conditions of local operation always.

Q. I wish you would state what if any additional investment will be necessary in the near future if the company is to maintain the efficiency of its service here in Des Moines. State generally or in detail as you prefer.

A. Well in connection with my giving the full calculations I have gone very carefully into the probable increase in gas sales in this city and I estimate that during the next seven years there will be required approximately 40 per cent more gas than is now that is there will be sold approximately forty per cent more gas per day than is now being sold. This plant now has a reserve capacity which is so small that within two years it will be necessary to make additions and at that time it would not be good business to make a small-addition than two million cubic feet per day in capacity at the works. The reserve capacity required in a water gas plant will decrease in percentage of the total capacity as the plant increases in size. In other words, this two million feet water gas set which may now be considered reserve of a plant of three million capacity is also ample as reserve for a plant of five million safe working capacity.
1044 So to give this plant an additional capacity of two million feet per day it would be necessary to add only the two million feet. But you would have to add it in the water gas generating plant and in the condenser and in the scrubbers and in the exhausters and in the purifiers and in the buildings proportionately and possibly some additional real estate will be required for that portion of the plant and you would need in addition I should say about three years from now, within three years additional holder capacity and that holder capacity should be certainly a minimum of two million cubic feet. Then for an increase of forty per cent in sales I would judge that you would have to increase the investment

in mains by twenty per cent over the present reproduction cost. To take care of forty per cent increase in sales you would also have an increase of services and the number of meters by approximately forty per cent of what they are now. The total of all of these extensions would approximate something over one million dollars. And some of this money would have to begin going into the property I should say certainly within eighteen months some of it and be spread over a period of perhaps over four or five years.

Q. Can you tell us what must be the per cent of condition of a plant in order to permit it to render efficient service?

A. Well that will again vary with the different parts of the plant. A scrubber for instance might be almost ready to go out of commission and still be capable of holding the trays and retaining the gas as effectively as a new scrubber. But that would not be true of the water gas plant or would not be true of the holders because there would be such an element of danger involved there you would be compelled to take them down. I should say that a plant having as a whole, that is the works themselves having as a whole a per
1045 cent condition below seventy was getting into the dangerous region and I would not — to operate it. On the other hand you might go too far and spend money unnecessarily in maintenance. For instance it is not at all necessary to have the present value of the plant 95 per cent say. If you were to keep all your plant up to 95 per cent you would be wasting money. Between these two points is the per cent condition in the average plant which will yield the greatest net return without taking any chances with the interests of the community or of the company.

Q. You are familiar with the location of the real estate used by this *property* in connection with its manufacturing plant.

A. Yes, sir.

Q. I wish you would state what if any factors there are which render the location of this real estate especially adapted to the uses of this company manufacturing and distributing gas.

A. I would say that this is one of the very best if not the very best locations within the city of Des Moines for a gas plant. I say that in view of the effect which other locations would have upon the cost of manufacture or distribution or both and of such other items as complications arising from being too near to the center of the city. The location of this property is very advantageous from a transportation standpoint. It is advantageous with respect to the river which affords convenient drainage facilities. It is as close to the center of distribution as you can go and still remain on low ground with trackage facilities without being in constant danger of suits because of nuisance.

Q. What do you mean by that?

A. A gas plant located in the midst of the best residential district is always subject to complaint and frequently to legal action because of the smells coming from a gas plant. The plant is located on ground which is lower than the major portion of the district
1046 to be supplied and that is an advantage because it reduces the necessary investment in street mains due to the fact gas is lighter than air. It is also advantageous in view of the fact

that it is not surrounded by industries or residences or mercantile places that would be seriously affected by proximity to a gas plant.

Q. You speak of trackage facilities. What materials that the company uses come in by the carload?

A. Coal, coke, oil, pipe, all the fixtures and appliances, gas consuming appliances, all of the gas making material and practically all the material which the company uses in extending and developing its business come in by rail in carload lots. And the tar which the company ships away is handled the same way.

Mr. GUERNSEY: We offer in evidence Exhibit 20 in connection with Mr. Lea's testimony concerning it.

Mr. BYERS: Exhibit 20 is objected to as incompetent, immaterial not rel/evant to any issue that is involved in this controversy. We make the further objection to all of that part of Exhibit 20 which has to do with the so-called hypothetical plant and the item of going value and all the other items involved in the schedules and tables going to make up this socalled hypothetical plant and going value as entirely irr-levant to any issue in this case, incompetent and immaterial. We make the further objection to all that part of Exhibit 20 which refers to the going plant for the reason that it appears from the testimony of the witness by whom the exhibit is sought to be identified and qualified that the schedules and tables of figures and all the figures contained in that part of Exhibit 20 are mere estimates and nine of them purport to be the facts and figures as shown by the records and books of the company which it appears
1047 from the witness' testimony was in a measure used as a basis for his computations and schedules and tables of figures. We make the further objection to that part of Exhibit 20 in which the computation and tables and schedules of the so called going plant are set out that it appears from the testimony of the witness that the exa/t figures as to all of the problems involved in this part of Exhibit 20 as to the questions of cost and the questions of lineal feet and size of pipe and all other important items entering into the valuation of the property of this complainant is found and can be found in the books and records of the company and were within reach of the witness and are now in reach of this court and for that reason the estimate of the witness is incompetent and immaterial and irrelevant and for this and the reasons heretofore stated in the other objections, the defendant objects to any testimony being received upon the theory of replacement or reproduction. Defendant objects to all that part of Exhibit 20 and to all testimony given by the witness, Mr. Lea, with respect to mains under paving for the reason that the same is incompetent, immaterial, irrelevant, not the best evidence and it already appearing from the testimony of the witness that wh-ever facts are necessary to ascertain the value of this complainant's property with respect to mains and pavements are matters of record in the books of the company. For the further purposes of the record I would like to have the record show the same objections made to the matter in Exhibit 20 as are covered by the preceding objections shall stand as to the items of estimated value given by the witness Lea, in Exhibit 20 and also as to the testimony

as to crossings under railroad tracks and street railway tracks for the same reasons.

1048 Cross-examination by Hon H. W. Byers:

Q. You started your examination several days ago with the suggestion, Mr. Lea, or statement rather, that you were 33 years old and a consulting engineer. Where is your present residence?

A. Chicago.

Q. And your business, Chicago?

A. Consulting Gas Engineer.

Q. I mean you have your headquarters in Chicago, your business headquarters.

A. My office you mean, location of my office?

Q. Yes.

A. In Chicago, corner Adams and Michigan Boulevard.

Q. Is that the People's Gas Building?

A. That is the name of the building.

Q. How long have you been in that building?

A. Since the building was ready for occupancy, about a year and a half ago I judge.

Q. And you have been more or less interested in the gas business since 1896 I believe you said?

A. Yes, sir; continuously.

Q. Always as an employé?

A. No, sir.

Q. Part of the time as owner or interested in the business yourself in a financial way?

A. Well not interested in the ownership to any extend, but I was thinking of salaried positions. I have not been on a salary for nearly five years.

Q. I used the term employé in a general sense.

A. Oh yes, always been working for somebody on some basis.

1049 Q. Never operated a gas plant yourself?

A. Yes, I have done that.

Q. As the owner?

A. As the part owner.

Q. Where was that and when?

A. That was in a town of about 7000 people in Illinois.

Q. How long ago?

A. Well I got the plant about two and one half years ago.

Q. Do you have it now?

A. Yes, sir.

Q. You are operating it right now?

A. Yes, sir.

Q. What kind of a gas plant is it?

A. Coal gas.

Q. What do you say the population of the city is?

A. About 7000 I understand.

Q. What town is it?

A. Duquoin.

Q. How far is that from Chicago?
A. About 280 miles.
Q. South?
A. Yes, sir.
Q. How far from east St. Louis?
A. I would judge about 65 or 70 miles.
Q. Is anybody else interested with you in that gas plant?
A. Yes, sir.
Q. Who?

Mr. GUERNSEY: I don't know of there is any objection to disclosing this, but I think it is not cross examination and wholly immaterial. I don't know whether Mr. Lea has any business rea-
1050 sons for not wishing to disclose it or not.

Mr. BYERS: Perhaps he better suggest it if he has.

A. There is not the slightest objection in the world to telling who is associated with me if it is of any importance in the case. The people are not in the gas business at all aside from this one venture. If there is any importance or any reason why the name should be given, but I don't see that it is of any importance.

Q. Of course you may not see that but it may be possible when you don't see it, that when we know we won't see it, but now we don't know it.

A. There is no other owner of any part of this Duquoin Gas Co., who is in any way connected with any other gas company as owner as part owner or officer or employé.

Q. That is a very proper statement, but if you will just tell us who it is.

Objected to as not proper cross examination, irrelevant and immaterial.

A. Frank M. Elliott, real estate dealer of Chicago, Frederick W. Harnwell, a corporation counsel, in the city of Chicago.

Q. Anybody else?
A. That is all.
Q. Now have you any interest in any other gas property or gas plant anywhere?
A. No, sir.
Q. Have you had?
A. No, sir.
Q. Ever operate any other plant but this one?
A. I have operated other plants but not as owner or part owner.
Q. I mean as owner?
1051 A. No, sir.
Q. What did you say was the population of the city where this plant is located?
A. I have never seen the census figures. I am told it is 7000 and it looks about 7000 to me.
Q. What is the gas rate there per thousand feet?
A. I don't remember.
Q. Don't you know what you get?

A. I know how to find out what I am getting, but I don't remember.

Q. How long have you owned the plant?

A. About two and a half years.

Q. Are these other men gas experts?

A. They have never had any experience before or been in any way connected with gas. They have no connection now with the plant except one is called vice president and one called secretary and the secretary's bookkeeper writes out the vouchers, that is the only connection they have.

Q. What is your title?

A. President.

Q. Manager?

A. No. A local man is manager.

Q. A local man operates the plant?

A. Yes, sir.

Q. To whom does he report.

A. To me.

Q. Don't you know at this moment what price you are selling your gas for there?

A. I do not.

Q. What were you selling it for there last year?

A. I believe it was 1.50, but I am not sure of that.

1052 Q. And the year before?

A. I don't remember.

Q. Do you know what you were selling it for the first of this year?

A. No, sir.

Q. Say the first of January 1911?

A. No, sir.

Q. You don't know what you are selling it at now?

A. No, sir.

Q. From whom did you buy the plant?

A. From the then owners, but I have forgotten their names.

Q. Were they local people in that little city?

A. Yes, sir.

Q. Who did you buy your material, your supplies and material for extensions of?

A. We don't buy it from any one person.

Q. From whom do you buy the larger part of it?

A. If you will specify the material I will try to tell you.

Q. Such as your mains and service pipes and that class of goods?

A. We haven't bought any mains, if we had we would have bought them probably from the U. S. Cast Iron Pipe & Foundry Company.

Q. Where are they?

A. Chicago, one office. I say probably, that is just because they are usually able to name better prices in the vicinity of Chicago than the other pipe people.

Q. Have you bought any new apparatus since you have had it?

A. Mone complete apparatus, we have had some refilling of benches done.

Q. What is the apparatus that is used in the plant, that is whose make is it, give us the name of some of the important parts of the apparatus.

1053 A. The benches were originally built I think by the Laclede-Christy people. I believe they built the first two benches and I believe the Walker-Russell Main manufacturing Company built the third bench. And the refilling which I have just named was done by the Gas United Construction Company of St. Louis.

Q. When did you first become part owner of that plant?

A. About two and a half years ago.

Q. That would be some time in 1908?

A. I believe that is correct yes.

Q. And you have owned as interest in it ever since.

A. Yes, sir.

Q. You began by saying other things you opened your office in Chicago in 1907.

A. Yes, sir.

Q. Now was it, to fix this time of purchase of this plant, a little more definitely, how long was it after you opened your office in Chicago?

A. I don't remember, it was in the neighborhood of two years.

Q. After you located?

A. In the neighborhood of two years, yes.

Q. So it would be perhaps safer to say some time in 1909 then that you became interested in the gas plant.

A. I can get the record if necessary.

Q. It is not so important but I want to get your best judgment about it.

A. It is between two and two and one half years as I remember it since I got the plant.

Q. What was the Daws syndicate you referred to?

A. That is a group of men represented usually by one or more of the Daws Bros. of Chicago.

Q. Is this Charles Daws the man who was formerly at

1054 Lincoln, Nebraska is that one?

A. He is one of the brothers.

Q. What is the practical business of the syndicate?

A. I don't know except in a general way that they operate gas and electric properties.

Q. Throughout Illinois?

A. I don't know where they are now I have not been with them for several years, know nothing about their business.

Q. Were you ever employed by them?

A. Yes, sir.

Q. When?

A. At five or six different places.

Q. When?

A. I don't remember the years. You will find the name of the cities in the record.

Q. I think you said there were two cities that you had made an inventory or was interested in either making an inventory or—one was Buffalo and the other Beatrice, Nebraska.

A. That question referred to work which I done for municipalities recently and those are the only two municipal jobs I have had recently.

Q. How recently were they?

A. Within the past year, past six months you might say, within the past six months I believe both of them.

Q. Were you employed by the Daws Syndicate in 1907 at the time you opened your office in Chicago?

A. No, sir.

Q. Have you been since?

A. No. sir.

1055 Q. Then your employment with that syndicate was all prior to 1907?

A. Oh yes, a long time prior.

Q. You spoke about your having some employment by a committee in Chicago under which you worked or made a partial estimate of the value of the Chicago Gas plant, I have forgotten the name of it.

A. No, I didn't refer to any committee, I said by interests antagonistic to the company.

Q. What do you mean by that?

A. Just that. Interests antagonistic to the gas company.

Q. You mean the community, interests in the community there, or do you mean some gas manufacturing Company?

A. This interest was in the community, yes.

Q. Was it a gas concern?

A. No.

Q. Wasn't the city of Chicago?

A. It was not.

Q. When was that employment, when did it begin?

A. About the first of last year as I remember it.

Q. About the first of January 1910?

A. I believe that is right.

Q. What was the character of that employment, what were you employed to do?

A. Make a complete valuation of all gas property in the city of Chicago used and useful in the manufacture and distribution of gas in Chicago.

Q. Now if you have no objection I wish you would tell us a little more definitely who your employers were?

A. I would like to know whether it is important that I answer these things. This work comes to me in a confidential way. People do not employ consulting engineers to handle work and expect

them to announce that around what they are doing and who
1056 they are working for and all that and if it is not necessary I don't want to answer this. I have objections to answering.

Q. You don't wish to state who your employment was by?

A. I do not wish to violate the understanding or agreement under which the work was given to me. It was not supposed that I would make public matters of that sort when the work was turned over to me.

Q. Of course you understand Mr. Lea I am not asking you for the details of your employment at all or for the result of your investigation, I am simply asking you now is you are not willing to give us the names?

A. I am not.

Q. The name of the individual or corporation or interest that employed you?

A. No, sir; I am not.

Q. How did it come that you did not complete your work for that interest?

A. Two of the men in the board of directors of the company by whom I was engaged to do this work died within a period of thirty days of each other and it happened that these two men between them had controlled the policy of this concern. On the death of the second of these two men the next strongest man came into the control and his policy was directly antagonistic to that of these two men who had died and he was not in favor of continuing this work and it was at that time stopped.

Q. Now up to that time in pursuing your employment had you spent some time in the offices and about the plant of the Chicago Gas Co., that you were investigating?

A. Oh several years before that.

1057 Q. No, as part of that employment. I am referring now to the employment of this company two members of which you say died. I understood in your examination in chief you said that you got about half through with making this valuation of that gas property when your employment ceased. Now this question goes to that employment and not any former employment?

A. While I was making that examination I had naturally to go to the properties of the company and I had completed my examination of several of the plants in Chicago at that time.

Q. And had you gone through any part of the books and accounts of the company?

A. No, sir.

Q. Had you spent any time in the office of the company?

A. No, sir.

Q. Your work then up to that point had been confined to the physical property, that is the plant and the mains and services, etc.?

A. Had been confined exclusively to the plants. There were several plants in Chicago, several manufacturing stations in Chicago.

Q. Of course I am confining myself or trying to to the concern that you were examining ?

A. Well I had examined several of the gas plants in Chicago for that concern before the work was stopped and had reported to them on the plants.

Q. That is several plants owned by the gas company?

A. By plant I mean in this sense, manufacturing stations owned by the people Gaslight & Coke Co. in the City of Chicago.

Q. In doing that had you access to any records or books of that concern?

A. No, sir; I did not try to get any access to records or books.

Q. When you got about half through you then completed the work for gas company.

1058 A. After an interval of time.

Q. How long?

A. Perhaps thirty days, forty days.

Q. Just about when was your employment by the gas company, give us the date as near as you can?

A. I don't remember the date. Perhaps about the middle of last year.

Q. About the middle of 1910?

A. I should judge so.

Q. And when did your work cease?

A. When I finished the job along in the fall some time.

Q. How long before you came here?

A. Oh sixty or ninety days may be.

Q. That then would be some time in October?

A. I don't remember the date. I would have to look it up.

Q. You remember when you came here.

A. It may have been only thirty days.

—. ——.

A. Yes I gave that the other day the first part of January, January 13th I came here.

Q. You did have access to the plants did you?

A. Yes, sir.

Q. And spent considerable time in making up your report?

A. Naturally I had to examine the equipment and buildings myself.

Q. Referring now to the time when you were working for these hostile interests?

A. The same thing applies, I was doing exactly the kind of work for them on exactly the same basis when I finished later for the company.

Q. So you did have access to the plant while making the

1059 fore part of your report?

A. Certainly yes.

Q. And that work was going on as late as October was it?

A. I won't say that, I don't remember. I would have to look it up.

Q. When were you first interviewed with respect to the Des Moines situation?

A. 12th of January of this year.

Q. Was that the first time anything was said to you about it?
A. Yes, sir.
Q. And where was that interview?
A. It was in Chicago and in Des Moines. Mr. Haines was in Des Moines and I was in Chicago.
Q. It was over the telephone?
A. Yes, sir.
Q. Or by correspondence or how?
A. Telephone.
Q. That was the 12th of January?
A. As I remember it.
Q. At that time your work in making the inventory and valuation of the Chicago property had been completed as I understand it?
A. Yes, sir.
Q. So that you had no further employment at that time for the Chicago concern?
A. Not for the Chicago concern.
Q. What other employment do you have or did you have in the way of making valuations or invo-ces on gas properties at the time Mr. Haines first spoke to you?
A. Only valuations you mean?
Q. Valuations or any other information that you were to
1060 give about the cost of gas plants?
A. I had pending at that time the designing of a gas plant for Coshocton, Ohio, the designing for a gas plant for Brazil, Indiana, and there was still some loose ends on the appraisal at Freeport, Illinois. I think that is all I had on at that time.
Q. This appraisal at Freeport, who was that being made for?
A. The company.
Q. What company?
A. The Freeport Gas Light & Coke Co.
Q. Is that a local concern in Freeport?
A. Yes, sir.
Q. No connection with the Chicago plant.
A. Not the slightest or with any other gas company that I know of anywhere.
Q. You made an investigation and you know I suppose as a matter of fact from the examination of their books?
A. I never examined the stock certificates, I don't know who owns the stock but I was told locally that it was held locally. I don't examine the stock certificate record or bond holders in order to determine the value of property.
Q. You don't care anything about that in order to get at value.
A. Not the slightest thing in the world, no sir.
Q. Who were those other examinations being made for
A. The Coshocton was for the firm of James B. Clough & Sons, cast iron pipe manufacturers in Chicago.
Q. No gas concern at all?
A. No, sir. The Linton was being done for a consulting electrical engineer in Chicago who was not familiar with gas prices, he had

not had any experience in it and didn't want to take the
1061 responsibility so I handled the gas part of the work for him.

Q. The gas property at Freeport, was your investigation and examination there made with a view of being a witness in some controversy?

A. No, sir. There was no argument of any kind on at Freeport. The company had been running along for a very great many years with its original capitalization or at least capitalization was many years previous, the city had grown and the business grown to a point where the company wanted to reorganize and my report was made exclusively for the purpose of providing the owners of the company with a correct basis of reorganization as between themselves, not as between themselves and the city or any other opposition. There was no opposition about it.

Q. Is this the first time that you ever made an investigation of a gas plant for the purpose of making an estimate of value as a witness?

A. No, sir.

Q. In what other case do you remember now?

A. Well are you asking whether I appeared as a witness or whether the work was performed with that possibility?

Q. With a view of being a witness.

A. This is not the only one, no.

Q. When was the last case just prior to this present one?

A. The last one prior to this was Taylorville, Illinois.

Q. How large a place is that?

A. I don't remember. I think it is about 12000.

Q. And how long ago?

A. Oh four or five months, this year some time.

Q. By whom were you employed in that case?

A. By the ocmpany.

1062 Q. What is that company?

A. I believe the title is Taylorville Gas—I don't remember the exact title, the only gas company in Taylorville, Illinois.

Q. And is it a local company, the people who own it live there in Taylorville?

A. I don't know where the ownerhsip rests.

Q. You don't know what relation it has if any to the Chicago Company?

A. I have not the slightest reason to think there is any connection between them and the Chicago Company.

Q. Or the United Gas Improvement Company?

A. No, sir. Because the only interests I know of as being concerned there are interests antagonistic to both interests in Chicago and the United Gas Improvement crowd.

Q. Was that in a rate contro-ersy?

A. Yes, sir.

Q. Anywhere else just recently?

A. Well Beatrice, Nebraska was within the last, well say in this year.

Q. Was that a rate controversy?

A. Yes, sir.

Q. You appeared there as I understand it for the city?
A. For the city, yes.
Q. Beatrice is a town of about 15,000 people?
A. About that.
Q. More than one gas plant there?
A. No, sir.
Q. Do you know what that company is there?
A. What the nature of the gas is?
Q. No the company itself, is it a local concern?
1063 A. No, it is not a local concern. A man whose name I have forgotten, but who I remember is pastor of John D. Rockefeller's church in Cleveland is the principal owner. I think it is Eaton, is the principal owner and they have one or two other plants, one of which is in Canada.
Q. One in Canada?
A. Yes, sir.
Q. Now Mr. Lea, how long after you received your telephone communication was it before you came to Des Moines?
A. About ten hours.
Q. And when had you been in Des Moines just prior to that?
A. Severa- years, I have forgotten just when. The last time was at some gas convention here.
Q. Can you give us somewhere near the time?
A. Four, five, six or seven years ago, I don't know, I don't remember. I should say thought not less than four years nor more than seven.
Q. Had you ever lived in Des Moines?
A. No, sir.
Q. I think you said you were at Ottumwa awhile?
A. Yes, sir.
Q. How long?
A. Some few months, until my work there was done, I have forgotten just how many.
Q. Was that the only residence you ever had in the state?
A. Well I didn't claim it was my residence then.
Q. Anywhere else?
A. I was at Keokuk for a short while.
Q. Managing a property for somebody else?
1064 A. No not managing, my work was making changes in the plant so the plant could make coal gas or water gas or both.
Q. You were there as engineer?
A. Yes, sir.
Q. Is that also true of Ottumwa?
A. Yes, sir.
Q. While you were at Ottumwa were you in Des Moines?
A. I don't remember where I came from to attend this gas convention. I would have to learn the year and I don't remember what that was.
Q. If you were here it was just to attend that gas convention?

A. That is all. Just gave a cursory look over the plant while attending the convention.

Q. Then you came here the 13th of January was it?

A. Yes, sir.

Q. Then I suppose you had a personal interview with Mr. Haines?

A. Yes, sir.

Q. And what did he say to you about what he desired to have you do?

A. He told me that there was some question between the city and the company as to the price of gas and that he would like to have me make an appraisal of all of the property of the company used and useful in the manufacture and distribution of gas within the city of Des Moines as it was at that time or as it was on the 1st day of that month.

Q. Did he make a contract with you?

A. Nothing beyond a verbal contract.

Q. I am not asking for the terms but you made a contract did you of some kind?

A. Made a contract in the sense he told me what he wanted me to do and I said all right I will go ahead.

Q. Who did you understand was employing you to do the work?

1065 A. The Des Moines Gas Company.

Q. And are you in their employ now?

A. In the sense that I am being paid for my time here.

Q. Your employment has continued along until this time?

A. No, sir. I am in their employment when I am on their work. If I go on somebody else's work tomorrow and back here next day I am not on their pay in the meantime. I am on my own or some one else's time in the meantime.

Q. I suppose your employment then is perhaps by the day?

A. Yes, sir.

Q. Did Mr. Haines tell you at that time what the controversy was?

A. I don't remember that he did. I don't remember that he did not. I know it was not very long before I understood about where the case stood, but I don't remember exactly what he told me.

Q. He told you didn't he at that time that the controversy was over the charge for gas, that he was selling gas at $1.00 and $1.10 and the city had passed an ordinance reducing the rate to 90 cents, that is the way you understood it?

A. I understood that was what had happened or was about to happen. I don't remember now it was one or the other.

Q. Mr. Haines told you I suppose that he wanted you to place a valuation upon the gas company's property on the theory or at least on his claim that the valuation of the property and the cost of making gas here would not justify making the 90 cent rate.

A. He certainly did not.

Q. Well what did he say about that?

A. He didn't have anything to say about that, he could not have said it to me if he had.

Q. Did he say that the rate fixed by the ordinance was too low, they were not going to yield to it?

1066 A. He didn't say anything to me about the ordinance being too low.

Q. What did he say about it in explaining to you how the controversy arose.

A. I don't remember that he did explain how the controversy arose. I remember very shortly after I got here that the controversy was over a proposed or actual 90 cent ordinance and that the existing price was $1.00 net and I was asked to make an appraisal of the property of the company.

Q. What do you mean by $1.00 net?

A. That is the price of gas after the discount for prompt payment has been deducted.

Q. That is the company got $1.10 if the payment was not made within a certain time after the first of the month?

A. Yes, sir.

Q. And if it was made it would be but a dollar. Now what else did he say.

A. I don't remember anything he said beyond the statement that he would like to have me make a valuation of this property.

Q. Did he tell you what property?

A. Property of the Des Moines Gas Company.

Q. How long after that before you were furnished with the books and records and papers of the concern if you were ever furnished?

A. I was furnished with some material that same day, but I don't remember now just what it was and how much of it.

Q. Now in making up your valuation did you proceed wholly on your own theory or upon the theory suggested by anybody else?

A. I proceeded upon what I considered as the only theory that anybody can consistently proceed on that is formulated there as the only valuation to be reached.

(Question read.)

1067 A. May I ask now you mean theory as to the basis on which the value is to be made?

Q. The manner in which you made it and theory on which you based it.

A. You mean to say I commenced in my valuation by opinions or suggestions of other people, is that what you mean?

Q. No, what I mean Mr. Lea, did you proceed to ascertain first the physical items of this property and then proceed to put a valuation upon it upon your own theory or upon some theory suggested by somebody else?

A. I used no theories obtained from other people in the sense you are speaking of except that I have not evolved any theories out of my own consciousness as to the basis on which the appraisal should be made. I have followed what is recognized as good practice.

Q. After you had accepted your employment I wish you would tell the Master just what was the first thing you did to begin your work?

A. Went to the plant and looked around.

Q. Anything else?

A. Came back and got some details as to equipment and went back to the plant.

Q. What details?

A. I don't remember.

Q. In a general way.

A. Went over portions of what now constitutes the inventory. They were not at that time finished up as I remember it.

Q. You say the inventory was not finished at that time?

A. As I remember it. I may be wrong on that. I know I did not get a complete inventory at that time on my arrival.

Q. After you got through with your looking over the plant as you say you did, what was the next thing you say you did in the way of getting a basis for your valuation?

1068 A. The checking of the items in a portion of the inventory which I had to satisfy myself as to the substantial accuracy of the inventory.

Q. Checking it with what?

A. With the items themselves.

Q. The items themselves?

A. I had gone over the physical property, the plant and tools and apparatus.

Q. What next did you do in the way of ascertaining the necessary information upon which to base your value?

A. Well after I had obtained the balance of the inventory showing the distribution system and balance of the works equipment, I drove over all parts of the city to see if the indications I could locate of gas supply would agree with the extremities of the main system shown on the map.

Q. Who gave you the information upon which you could make your trip about the city, where did you get that?

A. The map itself you mean?

Q. Yes, you might have got it from the map, but who was with you to help you to locate these mains and services and all that sort of thing?

A. Well part of the time I was alone and part of the time Mr. Vinvent was with me.

Mr. GUERNSEY: Who is Mr. Vinvent?

A. Engineer of the gas company, he saved me some time showing me short cuts to the districts I wanted to see.

Q. What did you do next?

A. After satisfying myself that the works equipment, buildings, real estate and distribution system were as indicated in the inventory I set about learning the local factors as to prices of labor and

1069 raw materials entering into construction.

Q. How did you do that?

A. By asking questions.

Q. Yes, I know, and I want to treat you right Mr. Lea, and I hope you *you* will meet me half way on it. Now what I want to know from you about that is just where did you go to get your

information and who directed you to the places you went, who did you see?

A. Nobody directed me to most of the people I asked. I have some figures that were obtained before I came.

Q. Where did you get these figures?

A. These figures I got from the gas company.

Q. Here in Des Moines?

A. They obtained them from the contractors in the city, some of the contractors.

Q. And furnished them to you?

A. Yes. That is not saying those were the figures I used. I admit having received them from the company, but I did not use them as I received them.

Q. I wish you would state in the shortest possible way that it can be fully stated just what you *have* in your mind now after you had accepted this employment it was necessary upon which to fix a valuation of this property, just the items you had in your mind necessary to be ascertained?

A. I had in my mind one thing and that was the determination of that value upon the physical equipment of the property with allowance for working capital and preliminary organization expense and for going value which could be substantiated by the facts in any court and nothing else.

Q. You cared nothing about investment?

A. Nothing.

1070 Q. Cared nothing about original cost?

A. No, sir.

Q. You paid no attention to either of these items?

A. Except in a very indirect way I did not use them.

Q. You cared nothing about capital?

A. No, sir.

Q. You cared nothing about construction cost as it appeared in the books?

A. No, sir.

Q. You made no effort to ascertain any of these facts?

A. No, sir.

Q. And you proceeded entirely upon the theory it was absolutely immaterial as to what any of this property here cost or how much money had been invested in it or what operating expenses may have been?

A. I never said that.

Q. Which item do you cut out?

A. I don't say it is absolutely immaterial as to what these did cost nor as to what labor or other operating charges may have been, I said nothing of that sort. I said only this, I never considered the actual cost of any of the items as shown by the books of the company. In arriving at the present value of the property because I don't know that these records cover the actual present value, but I do know how to arrive at the present value by my own methods.

Q. You made no effort then did you to ascertain what the property cost the company to begin with did you?

A. I was not asked to determine what it cost.
Q. (Question read.)
A. No, sir.
1071 Q. You made no effort to ascertain what the present owners of this property actually invested in it did you?
A. No, sir.
Q. You made no effort to ascertain from the books of the company just what the labor cost that was involved in the plant at the time you began to investigate it did you?
A. No, sir.
Q. In other words, you paid no attention so far as fixing the value is concerned to any fact that could be ascertained from the books of the company except to check up the physical items of the prop'— is that right?
A. That is so, but it is so because I considered it——
Q. I am not asking why it is so, simply asking for the facts?

Mr. GUERNSEY: I think the witness has a right to add the explanation.
COURT: Well it is now adjourning time.
Here the further hearing was adjourned until 9:30 A. M. tomorrow.

1072 Thursday Forenoon Session.

JULY 27, 1911, at 9:30 a. m.

Counsel for the respective parties all present.
Testimony on part of complainant resumed as follows:

HENRY I. LEA, Re-called for further cross examination, examined by Gen. H. W. Byers, testified as follows:
Q. Mr. Lea, I want to clear up one matter I thought about after we adjourned last night. I think you misunderstood one of my questions. Early in the cross examination you were asked, when you came here after a telephone communication, about what Mr. Haines said to you about the character of the controversy that was on, and the purpose of an inventory or a valuation of their property, and you were asked, as I remember it, what Mr. Haines said to you about the valuation of the property as to their wanting the property valued for the purpose of sustaining their position as to rates. Evidently from your answer, as I read it over, you got the impression from that question that I meant to inquire of you if Mr. Haines did not tell you just the kind of valuation he wanted made?
A. I thought that was what you were driving at.
Q. That was not it at all, what I was driving at. I don't want you to think that I would suggest that about Mr. Haines, and I do not want it to appear that way in the record. All I was trying to get at was just what information you had about this controversy when you made up your mind as to what method you would pursue in making the valuation, and what theory you would adopt in arriving at your valuation. Now, another thing I want to ask you a little

further about—did I understand you to say that you had
1073 made or placed a valuation on the gas plant at Beatrice for the city?

A. Yes, sir.

Q. You filed a report?

A. Yes, sir.

Q. When?

A. I don't remember the date; I have a copy of it in my office.

Q. About how long ago?

A. In the past six or eight months.

Q. Who employed you to do that?

A. The city council committee.

Q. Can you tell me the particular individual?

A. The city council committee, I have forgotten the name of the particular member.

Q. Were you at Beatrice?

A. Yes, sir.

Q. For how long?

A. One day.

Q. How long during that day?

A. Between the trains; I have forgotten.

Q. About an hour?

A. Oh, it was longer than that; I got there sometime in the forenoon and left some time in the evening.

Q. What that the first time you had ever been there?

A. Yes, sir.

Q. You went in from the east on the train that leaves Omaha about eleven o'clock?

A. I don't remember that.

Q. Anyway you left on the next train that came east?

A. I don't remember that; I was there something over a half a day.

1074 Q. But you don't remember the name of the individual who made the arrangement with you?

A. No, except he was the chairman of the committee of the city council having the matter in charge.

Q. Do you know that?

A. Yes, sir.

Q. Where did he meet you?

A. In Beatrice.

Q. This day you were there?

A. Yes. I met him in the store in which he was employed; I think it was the furniture store.

Q. Were you ever there since?

A. No.

Q. Were you ever back after that half day?

A. No.

Q. This individual who you say employed you, did he furnish you any of the facts and figures?

A. Yes. The city council committee had agreed with the Gas

Company as to the major portion of the facts concerning the property, and these facts had already been tabulated.

Q. The man furnished you this information?

A. The city council committee gave me a copy of that, and later in the presence of the manager of the Gas Company, I was advised that this was agreed to by both parties.

Q. Was there more than one of the council present when you got that statement?

A. I don't recall that. There were other men there but I don't remember whether one or more of the other two members of the committee were there or not.

Q. And you don't remember their names, any of them?

1075 A. No, sir.

Q. What was the Gas Company manager's name?

A. Rice.

Q. You met him over there?

A. Yes, sir.

Q. Was that the first time you ever met him?

A. Yes.

Q. Was that work going on in January last?

A. I don't remember.

Q. Was it since January?

A. I think so.

Q. Your report was filed since January?

A. Yes, I know it was since January.

Q. You came to Des Moines you said on the 13th of January?

A. Yes.

Q. In response to a telephone message?

A. Yes.

Q. Now, in the telephone message were you told the character of the work that was expected of you, the controversy that was on?

A. Not at all.

Q. You were simply asked to come here?

A. Mr. Haines asked me if I was so fixed that I could come to Des Moines that night for a matter he wanted to go over with me the following day. I asked him if it was urgent, and he said yes, and I came the same night. This telephone message was on the—and I arrived on the morning of the 13th.

Q. And your employment was arranged that day?

A. Yes.

Q. You began your work for the Gas Company then on the 13th?

A. Yes.

1076 Q. Do you remember having some correspondence with the city of Des Moines after that time?

A. I got a letter from somebody, I believe Mr. Brennan, asking me if I was available for work of this sort.

Q. That was some time after the 13th of January?

A. Yes.

Q. You wrote Mr. Brennan, did you?

A. Yes.

Q. Did you advise him you had been employed by the Des Moines Gas Company?

A. No, sir.
Q. Did you say anything about that in your letter?
A. I did not.
Q. Do you remember the date you got the letter first from the city?
A. No, it is in my office though, could be obtained easily.
Q. It was quite a long time after the 13th of January?
A. Oh, perhaps a month or two.
Q. I don't remember whether you stated in your examination whether you were a graduate of any school of engineering?
A. I am not, no.
Q. Your training along that line has been out of school?
A. It has been in school only so far as I could carry on school work in connection with the operation of plants.
Q. When did you come back to Des Moines after the 13th to go to work?
A. I went to work immediately.
Q. You didn't return to Chicago?
A. No, I stayed here something over two weeks before I went back.
Q. Then you were here in Des Moines at the time the city through Mr. Brennan wrote you, were you?
A. I don't know whether I was here at that time or not.
1077 I did not receive the letter here; that came to me while I was in Chicago.
Q. You went to work then on the 13th?
A. Yes.
Q. Did you at that time make any inquiry of the manager of the Gas Company about the property and about the investment in it and about the capital of the company?
A. No, sir.
Q. No questions of that kind were asked?
A. No, sir.
Q. Did you make any investigation of the Company's books or papers or records at that time for the purpose of ascertaining any fact with relations to the company's valuation of its own property?
A. No, I studiously avoided all that. I did not want to have any of the company's figures in my mind in any way concerning the value of the property.
Q. You did not care anything about their figures?
A. I wanted to make my own valuation.
Q. If I understand you, it made no difference to you at all, upon the theory which you pursued to make this valuation, what the company paid for their property or what the company considered it worth; you wouldn't give their valuation any weight whatever in arriving at your conclusion?
A. No, sir.
Q. In other words, you proceeded upon a theory of your own that had no relation whatever to any element or item of value that might appear from the company's books or records?
A. I took particular pains to avoid getting any information from the company——

Q. Please answer the question.

1078 Mr. GUERNSEY: I think the witness is entitled to complete his answer.

Answer continued: as to any value the company might place on its equipment and as to any indicated values of the property that might be taken from the books.

Q. But you proceeded upon a theory of your own that had no relation whatever to any element or item of value that might appear from the company's books or records?

A. I have answered it.

The MASTER: When you can answer a question yes or no, it is always best to do it.

Mr. BYERS: We will take an answer.

A. I cannot answer that by yes or no and make my answer complete.

Q. What part of it are you unable to answer by yes or no?

A. I have no right to claim some one theory under which I am making this valuation; it is not peculiar to me; it is a standard method recognized as being correct. I did follow this method which I recognized as standard and did not try to get from the Company any indication as to its information of the value of the property.

Q. In other words, to put the question to suit your notion, you proceeded to place a valuation upon the property without reference to any element or item showing the value that appeared upon the Company's books or records?

A. Yes, sir.

Q. Did you ever, in any of these other cases, where you have appeared as a witness, proceed in that way?

A. Yes, sir.

Q. In what case?

A. At Taylorville.

1079 Q. Have you been a witness at Taylorville?

A. Yes, sir.

Q. When?

A. Within the past few months.

Q. At Taylorville, Illinois?

A. Yes, sir.

Q. Where else?

A. That is the only place I have appeared as a witness.

Q. Have you ever made a report anywhere that was worked out upon the same theory and basis that your report in this case is worked out?

A. I have made a large number of reports, but never made any on any other basis; they have all been on this basis.

Q. All been on the basis of your report here?

A. Exactly.

Q. Including the going value?

A. I have not in all cases calculated the going value because I did not know how until less than a year ago.

Q. Have you in any case before worked out the going value as you have worked it out here?

A. Yes.
Q. Where?
A. In Chicago.
Q. In this report you made for the Gas Company?
A. It is a part of that report; it is not in the bound volume.
Q. It is not in the bound volume?
A. No.
Q. Is it a separate part of the report?
A. Yes.
Q. Any other place?

A. Not with the same detail as we have here. I have ap-
1080 plied it in other places.

Q. Well, give us the detail or rather the method in which you have applied it in any place where you say you have dealt with going value before.

A. Well, I applied it in a general way at Taylorville. I applied it in a general way at Omaha.

Q. What do you mean by general way at Taylorville?

A. I did not have the particulars required there, as to the records of the company in such detail as you would have to have to enable you to make a calculation in as great a detail.

Q. Then you did have the records of the company to work it out here?

A. That is admitted; of course that is shown by the calculation itself.

Q. You stated on yesterday you did not agree in all respects with the figures furnished you by the company and so in some cases you adopted your own; have you with you the itemized statement or invoice of fact and figures furnished you by the company upon which you base your report?

A. I am not sure. No, I have not; it is a copy of the inventory; the minor differences which are indicated here, is in my room.

Q. What is in your room?

A. The copy of the inventory on which my report is based.

Q. You have it here in Des Moines?

A. Yes, sir.

Q. I wish you would bring it in at the next sitting of the court and have with you all memorandums furnished you by the company, purporting to show the entries in their books with respect to the mains and services and operating expenses and all that class of figures.

A. I have no record purporting to show the entries in their
1081 books. The only figures I have are summaries.

Q. What do you mean by summaries?

A. The only figures I have, for instance, as to the street main system, for instance, would be the total number of miles at the end of a given year. I have not the detail as to the number of feet of each and the size of pipe at the end of that year.

Q. What I want is what was furnished you, if you bring that in that will be all that you can bring in. You stated in your examination in chief that the reproduction method was the accepted method;

who do you have in mind as having accepted that as the proper method of ascertaining the value, and the exclusive method?

A. It is the accepted method among the investing men of this country.

Q. Well, who do you mean by investing men, gas companies?

A. Not only gas people; people investing in utilities of all kinds, banks and bond houses and individuals.

Q. You stated too you had made an inventory and valuations for bond companies heretofore; can you give me the name of a bond company for which you prepared an inventory or valuation of gas property in which you dealt with the going value as you have here?

A. I can give you the name of a bond house in which I dealt*h* with going value, but not in the detail I show here.

Q. Give us the name of the company?

A. I would rather not do that.

Q. Why?

A. Because the business is of a confidential nature.

Q. The name is not confidential?

A. That is a part of the confidential relationship, I am not supposed to divulge.

Q. When was it?

1082 A. Well, several times; perhaps four times.

Q. When was the last one?

A. About a year ago.

Q. Now you say you did not deal with the going value in the same detail; how did you deal with it in that case?

A. It has been customary for a great many years to make an allowance for going value, but nobody has had in the gas industry any specific means to calculate the amount of the going value. It has been customary to take sometimes a year's gross income as the going value; sometimes a fixed sum per meter; like $30 per meter; sometimes a percentage of the reproduction cost of the property; and these methods are all more or less arbitrary and not specific enough to compare favorably in my opinion with the scheme we have followed here.

Q. You don't mean you have any better means or any more convenient way of getting at the facts and figures now than you had in years ago?

A. A very much more conclusive method than ever before.

Q. In what?

A. In that it shows all the elements which make up the total.

Q. You said a moment ago the reason you had not done it before was because you did not have the means; what did you mean by that?

A. The method itself is one which has not been used in the gas industry until within the past year. It has been used in other industries and has only recently been adapted to the gas industry.

Q. Do you know of any other consulting engineer that has dealt with going value as you have within recent months?

A. Oh, yes.

Q. Outside of any of the witnesses in this case?

A. Yes.

1083 Q. Who is one?

A. Leonard Metcalf of Boston.

Q. Who is another one?

A. John Alvord of Chicago.

Q. Those are both water men?

A. Exactly.

Q. Neither have worked out any such method in a gas case as you have here?

A. No, sir.

Q. Can you think of a single engineer dealing in gas other than yourself that has dealt with going value as you have here?

A. Yes, sir.

Q. Who is he?

A. Harry Abel, 40 Wall Street, New York.

Q. Anybody else?

A. Henry L. Doherty.

Q They have both dealt with gas cases and worked out the going value as you have?

A. Yes, sir.

Q. In any cases involving any court proceedings?

A. Not in any case which has yet come into court so far as I know.

Q. Do you know of any rate commission anywhere in the United States that has adopted your method and approved it?

A. I do not believe this method has ever been applied in a rate case before a commission in connection with a gas company; it has been applied on water companies.

Q. Do you know of any commission anywhere which has adopted this method as to water companies?

A. I know of commissions before whom the scheme has been presented.

Q. I am not talking about that. Do you know of any com-

1084 mission anywhere in any of the states that have adopted or approved your method of getting at the going value?

A. Not as a whole.

Q. In referring to your going value in your examination in chief, in trying to illustrate it to the Master you spoke about the grocery business. I wish you would tell the Master now what you understand the term good will means.

A. I understand good will to be that which prompts the individual buyer to go to one source of supply rather than to another when the prices of a given commodity and quality of that commodity are the same in the two cases or two places of sale.

Q. That is to say, take your illustration of the grocery store—if a grocer has spent several years in building up a trade and getting a large number of customers who confine their grocery business to him and buy of him, that is what you would consider the good will of that business?

A. I would consider it good will if there were some competing

grocer there who carried as good a stock as the other stock at the same price and there was some personal element that prompted the buyer to go to the man who sold the larger amount.

Q. What is your notion now of the difference now between good will as you have described it and the volume of business of the grocer?

A. I did not undertake to make any comparison between good will and the volume of business.

Q. Is there any?

A. Not that I know of.

Q. Then you want the Master to understand that there can be no such thing as good will unless there is competition?

A. I didn't say that.

1085 Q. What will you say about that?

A. There is a good will in a public utility, but not in the sense of a grocery store. A grocery store may carry exactly the same kind of a bean that the next grocer carries and may sell at the same price per pound or quart and there may be no one deciding factor as to which store will sell that bean except good will. The gas company is selling a product which has no exact duplicate in the city. It has competition. There is electric light, gasoline, kerosene, wood and coal, but there is no other supply of gas. Coal, wood and kerosene and gasoline may be used in place of gas for certain service, but there is no one other thing which will do all the things gas will do; consequently the competition is not exactly parallel.

Q. You knew, of course, when you came here to make this valuation that there was no other gas concern in the city of Des Moines?

A. Yes, sir.

Q. You knew so far as gas was concerned, for both illuminating and fuel purposes, the Des Moines Gas Company had a complete monopoly of the sale of this article for this purpose?

A. Yes, sir.

Q. So it was your notion then, since there was nobody else selling gas in this territory there could not be any such thing as good will and you would have to call it something else?

A. No, sir; there is a very distinctive element of good will in the Des Moines Gas Company.

Q. What is it?

A. It is not an item which I have tried to calculate or which I have included in any sense in any of my figures.

Q. Why not?

A. Because I don't know how to figure it.

1086 Q. What does it consist of?

A. You might say it is that attitude on the part of the public which prompts the public to use gas for lighting, when it might use electricity, kerosene or gasoline; it is that attitude on the part of the public which prompts the use of gas for cooking when it might use coal or coke, wood, kerosene or gasoline, and some of those things in some cases would do the work for less money than gas.

Q. Right at that point, how does that attitude come about, if it is

good will, who is it that brings about that attitude and how does that do it?

A. The company very largely brings it about through advocating its gas for fuel and educating the people to the use of gas for illuminating purposes and fuel purposes.

Q. Is not that exactly what you tried to work out here as to going value?

A. Not at all.

Q. No part of the education of the public to the use of gas is included in your so-called going value?

A. No, sir; I have very specifically assumed in that calculation that the state of education of the public with respect to the use of gas in the hypothetical plant is exactly as it is today in the city of Des Moines. If I were to assume that that education would have to be developed, I would have to add at least one hundred per cent to the going value shown in that calculation.

Q. Are we to understand that you assumed in your method as a basis of your calculation for going value here that all of that part of the work, of the gas company was already accomplished and existed here and did not belong to anybody?

A. I have assumed that the people in the second city in
1087 which the hypothetical plant is to be built already knew about the advantages of gas and were ready to take on the supply of gas.

Q. I thought you worked it out by saying that only a few used it the first year and then a few more the next year and so on.

A. Exactly so.

Q. Now if the Des Moines Gas Plant had blown up a day or two after you came here and the Des Moines Company had gone out of business and a new gas company started, do you think then it would take three or four or five years to get the people to using gas again?

A. It certainly would if you had to again begin to relay your entire distribution business and take on people who had not been used to gas and had only an education as to the advantages.

Q. That is what you call your going value, the difference between the number of people who use it in your so-called hypothetical plant and the number of people who use it in your going plant?

A. Distinctly not.

Q. Tell us more clearly what factor or weight, if any, the extent of the consumers had to do with your so-called going value.

A. That is shown very clearly in my calculation.

Q. I want to know what if any weight you gave to the question of the number of consumers?

A. What number of consumers; where?

Q. Where were you dealing with consumers?

A. This calculation shows clearly, I have considered the number of consumers in each of the three districts. I have considered the possible rate of development of the business of each of this class of consumers in each district.

Q. Development, who is going to develop them; what do you mean by development?

1088 A. You have got to admit that a consumer who has taken on a supply of gas today for the first time, does not, if he is an average consumer, does not equip his house with all the classes of appliances which he will have later. He first puts in one of the appliances and the meter goes in, and he runs along for a while slowly, and then he finds out it is an economical thing, and after a while he wants another kind, and so from time to time he adds appliances; as he adds appliances he naturally increases the gas consumption per meter per year. But that does not come instantaneously. If you had a community like Des Moines as to intelligence concerning the advantages of gas, but which had not used gas, and you were to suddenly turn on a supply of gas, these people would not immediately use gas at the rate they would ultimately use it. They would take on one appliance at a time. The consumption per meter would grow as they became more familiar. They might have known beforehand the advantages and economies; in a great many cases they might not have had the amount of ready cash; so the growth is gradual.

Q. So, then if I understand you, it is the difference in the earning power, or the actual earnings, if I may put it that way, between your so-called going plant and your so-called hypothetical plant, because of the necessity of this growth and development and this period of time that must elapse before the consumption will in the hypothetical plant equal the consumption in your so-called going plant, that you call going value?

A. It is not.

Q. Tell us what it is?

A. You mentioned one of the items only that enter into the going value.

1089 Q. How much of an element is that?

A. I can perhaps answer that better by showing what effect the rate of development would have if we assumed, instead of being able to catch up with the going plant in this case in seven years, that it would require ten years. Obviously the going plant would have a still larger lead over the hypothetical plant than it now has, and the going value of the existing plant would be correspondingly increased. By reducing the time required in the development of the business of the hypothetical plant you reduce the going value of the going plant. Now that is clearly only one of the elements entering into the calculations.

Q. How much of a figure does that cut in your final conclusion as to the amount of the going values; what part of it do you attribute to that?

A. Well, if we take a plant in which a ten year period is required, we arrive at a going value——

Q. You took seven years, didn't you?

Mr. GUERNSEY: I think the witness ought to be allowed to answer the question.

Answer continued: of say $1,400,000. This is not Des Moines

I am speaking of. If we assume a five year period for that same plant, we get a going value of about one million dollars.

Q. Let us assume a period of one year; let us take Des Moines, where we are, the place that we are talking about: the Des Moines Gas Company, we will say goes out of business, quits, plugs up their mains and quits business, say on the first day of January; now if I understand your testimony the Des Moines Gas Company, the going plant you talk about had some 19,000—we will use that number for illustration—consumers in Des Moines, people who know all
1090 about the advantages of the use of gas and knew all about what could be accomplished with it in their homes—now a new gas company is to take over this field and put in a plant; what would they have to do in order to reach these 19,000 consumers?

A. That is obviously not a fair comparison.

Q. Just answer the question; you are too much inclined to argue.

A. I can't answer it yet; he has not told me whether the new company had taken over the existing mains.

Q. The new company has taken over nothing, is just simply going to start in here to serve 19,000 people already educated to the use of gas, what would they have to do to reach that?

A. The parallel is not yet reached, because you are assuming a house fully equipped with gas appliances.

Q. I am assuming nothing; I am taking the situation just as you found it in Des Moines, with gas appliances in a certain number of homes and with gas being used by a certain number of the people, whatever that number is, as shown in your report and in the figures furnished you: that is all I am assuming; I want to know just what the company would have to do, what expenditures it would have to make before it could serve all of these people other than to just simply put the mains in and put in the services, install the apparatus at the plant, get their fuel, build the fire and start the machines and install their meters.

A. You cannot calculate going value on such assumptions; they are not fair.

The Master: Answer his question.

A. I cannot answer it; he is making assumptions that do not fit each other.

Q. In order to make your theory hold, you have to have a case to fit the theory?

A. No, sir, you have got to have conditions which can be
1091 reasonably and fairly assumed to be found.

Q. Now let us see if there is anything here that can be reasonably assumed. You knew before you got up this so-called hypothetical plant and carried out this comparison between the so-called going plant and the hypothetical plant, you knew you were making figures to be used in this lawsuit?

A. Yes, sir.

Q. You knew you were making your figures with reference to the situation existing in the city of Des Moines in January last?

A. As of the date January 1st.

Q. Now you knew at that time there were about 19,000 people in Des Moines, or 19,000 places where they were using gas?

A. Yes.

Q. So that you knew at least that many people had been educated up to the point where they knew what gas was and what they could do with it, and you knew there were about that many places being served with gas?

A. Yes.

Q. Now, then, there is nothing about any of those things that are assumed and unfair?

A. No, it is your next step that is unfair.

Q. The next step is that the gas company serving these people quits business?

A. Where are you going to allow the credit for the work already done by the Gas Company? You are taking advantage of work done by somebody else without making credit for it, which is unfair.

Q. I want to know now, take the new company, the hypothetical company that is going to start in here now and put in a plant and occupy this field of the Des Moines Gas Company, which it
1092 for some reason or other left; it is not important what the reason was; what would that new gas company have to do to reach those 19,000 consumers.

A. If it were humanely possible to duplicate the conditions which you have outlined, then of course, the going value of the existing plant would be less than it is; but it is not humanely possible to duplicate such conditions.

Q. You don't answer that question at all. What did you start out with in your report as the necessary thing to be done by your so-called going plant and so-called hypothetical plant?

A. I started out with the one purpose, of drawing a comparison between——

Q. I didn't ask you the purpose. I want to know what figures, what work you started with, whether the promotion of the company or whether it was putting in mains; what did you start with?

A. I started with the preliminary organization and expense of the hypothetical plant.

Q. That is what your new company had to do?

A. Certainly.

Q. And that covered the whole period of construction, didn't it?

A. Some of the expenses are spread over a period of three years.

Q. Your new company would have to do that thing and would have to put in those mains and put in the apparatus?

A. Yes.

Q. And make the connections at the houses, and as soon as that was done you would be ready to commence to serve these people.

A. As soon as they had the connections made.

Q. Would there be any going value there?

A. Very clearly.

Q. What would it be?

1093 A. Are you assuming now that each of the consumers at the present lines of the old company are also fully equipped with appliances for the hypothetical plant?

Q. Their houses were already equipped; you stated that you took Des Moines as it existed now, with its education and necessarily you must have taken it with its gas connections.

A. I did not so take it.

Q. You proceeded upon the theory that there were no connections?

A. I spoke specifically that I took Des Moines as it is in all respects, including the present state of education as to the advantages and use of gas, but without gas appliances in the houses; those appliances have got to come gradually; they cannot come instantaneously; they never do.

Q. If I understand you, the method you adopted, you proceeded on the theory that your hypothetical plant was going to be built in a town purely hypothetical, except that it had been educated to the use of gas?

A. I took an adjoining city exactly like Des Moines in all respects, including the education of the public as to the advantages of the use of gas, but omitting the gas plant and gas appliances in the houses of the consumer, what does it cost to reproduce the condition existing in the first city; that is what my calculation shows.

Q. You have been around the world a good deal—do you know of any such city?

A. I have not tried to find one.

Q. Do you think there is any such?

A. No.

Q. A city of that kind don't exist?

A. It is not necessary they should exist for the purposes of
1094 this calculation.

Q. Take your own city, which don't exist, and see where you come out—we will assume Des Moines is the kind of a city you are talking about, without any gas connections, but they are all educated to the use of gas, at least 19,000 of them are educated here; now what other than just the promotion expenses would the new gas company have to go to in order to reach these 19,000 consumers?

A. The promotion expenses are the new business expenses.

Q. I say other than promotion expenses?

A. That is all I have allowed for in addition to physical equipment.

Q. This so-called new plant—if the Des Moines Company would go out of existence, what would it have to do in the way of expenditure of money or time or anything else, other than the expense of installing and purchasing this apparatus, and installing its plant, putting in its mains, putting in the service connections and paying the cost of the expenses of all that work, and connecting up its machinery, or anything else.

A. It would have in addition the promotion or development expense required in bringing these people to the use of all the appliances they now have.

Q. But they are already educated to that?

A. They are educated as to the use of them, but they are not practiced in the use of them.

Q. They never used gas?

A. You may have lived in a city all your life and know all about the use of gas, and if tomorrow you moved into a residence and you begin to use the residence for the first time, you will not begin on a scale which you will finally reach.

Q. You take out somethng else besides the service con-
1095 nections; now you say it must be a city with people in it who have never used gas?

A. I didn't say they had never used gas; I say they must be educated to the use and advantages of gas.

Q. How, what sort of an education?

A. Well, some of them may have lived in other cities where they may have had gas, but the major portion in every city become acquainted with the advantages of gas through the development work of the gas company.

Q. Well, then, to make your theory work out now, give it the credit that it ought to have in the mind of the Master and the people involved in this controversy, you have got to have a hypothetical plant worked out as you worked it out, and you have got to have a hypothetical city where the people are not using gas and where some of them have found out how to use it by living somewhere else?

A. The city as a whole must have the present state of education of the city of Des Moines with respect to the use and advantages of gas.

Q. And those that never have used gas, you have got to have that?

A. That doesn't follow.

Q. If they use gas and know all about it because they use it that ends the proposition to educate them?

A. If you take a city exactly like the city of Des Moines, you will find lots of people fully acquainted with the theoretical advantages and with the costs and use of gas, who have never used gas.

Q. Then none of these people in this hypothetical town have ever used gas?

A. No, I didn't say that.

1096 Q. How many have used it?

A. I don't care how many of them.

Q. You don't care if none of them have used it?

A. All I want them to have is the present state of education in the city of Des Moines as to the advantages and economies of gas. If they have used gas before they are not going to jump in with a full complement of gas appliances right off the bat; most of them haven't money enough to buy it.

Q. Do you know of a single city anywhere in this country now, that in the constructions of its buildings, its new homes and its new business houses those appliances are not all put in with the construction of the house or homes?

A. I don't know of any city anywhere where those appliances are all put into any district, and it is not to be found.

Q. What part don't they put in?

A. There is no city in the world that installs all of its gas appliances when the buildings are put up.

Q. What do you mean by gas appliances?

A. Some new houses are piped for gas.

Q. What do you mean by some new houses?

A. Your question covered the situation in which all the work was done in all the houses.

Q. What proportion of the houses is it not done in?

A. It varies widely with the character of the cities. There are a great many cities in which it is a rare case to see a house piped when it goes up.

Q. Do you know a single modern residence built in Chicago recently which was not all fully piped for gas?

A. It is the exception to find a modern house fully piped for gas and electricity.

1097 Q. Then you have got to have a city with homes in which necessary plumbing for gas has never been made?

A. Have you; I didn't say that. This second city is to be identical with Des Moines in all respects, except that it has no gas plant and has no gas appliances in the houses.

Q. And never had any?

A. Never had any.

Q. What do you mean by gas appliances in the houses, piping?

A. Devices for consuming gas.

Q. You mean stoves and lamps and such things as that?

A. Yes.

Q. The piping is to be there then in your hypothetical plant?

A. If you do not grant the piping is there you are going to involve the period of construction, which would be reasonable.

Q. If the piping is there, the gas company has covered, of course in the laying of the pipes and the making of connections and installing of all its parts, that has all been covered in your construction account?

A. Yes, the account shows exactly what it is.

Q. So that everything up to the very point of turning on the gas, at the wall, if I may use the term, is there in your hypothetical plant?

A. My construction figures go to the outlet of the meter, because that is as far as the company goes. House piping is the work of the house owner and house piping belongs to the owner.

Q. In your hypothetical plant that is all there?

A. Yes, the piping is there. I am trying to arrive at a fair basis and it is necessary in order to be fair to assume that those pipes are in there, because if you do not do that you are going to assume that the gas company are putting in that piping, and you are

1098 going to increase the period of construction and increase the going value.

Q. In order to make your theory work at all you have got to assume just what you now stated, and at the same time assume

these other things that people never use gas in their homes, although they are piped and all that sort of thing?

A. The house piping is omitted from the calculation; it is not a part of the property of the company.

Q. Does the gas company own the gas stoves?

A. No, sir.

Q. You assume that there were no stoves in those homes?

A. There will be before the plant is thoroughly in operation.

Q. Your hypothetical plant would not run at all without appliances in the house?

A. These appliances go in as the work is indicated to progress in the figures.

Q. How do they go in?

A. The gas company puts in the stoves and appliances.

Q. But in your figuring out this so-called plant you assume those things get into the house by request of the owners or does the Gas Company put them in?

A. The Gas Company sells them to the house owners at a price which barely covers the stoves and appliances, whatever they may be.

Q. So you have assumed in your method of arriving at this going value that the supply here in Des Moines would only take these things gradually, covering the period you figured out?

A. I assumed that because that is the history of every Gas Company in the world.

Q. You have to assume that here in order to make your plan work, don't you?

1099 A. This plan will not work unless you stick to conditions humanely possible and in accord with practice.

Q. Please answer the question.

A. You don't assume it in order to make the plan work.

Q. Where is there a typical city, then, such as you have worked out, if you don't have to assume it?

A. I didn't say you don't have to assume it.

Q. If you didn't assume it, the plan wouldn't work?

A. This plan wouldn't work unless the things you assume are reasonable and within the limits of human possibility.

Q. It won't work there unless all those elements we are talking about are assumed to exist?

A. It is a hypothetical plant and you naturally have to assume each of the elements in it.

The MASTER: If you can't answer the question, say so.

Q. In order to cut this short, Mr. Lea, just tell the Master what you have assumed in making up your hypothetical plant, was the condition of the hypothetical town in which the plant was to work with reference to the use of gas; just state it.

A. I have assumed a town of the same size, and kind, and each of the characteristics throughout as the city of Des Moines; that there isn't any gas plant in the town; that there is none of the property which belongs to the company in this city, in this hypothetical town, that none of the gas appliances to be found in Des Moines are in this hypothetical plant, but that in other respects the towns are

identical. The gas ranges and meters and the piping is not the property of the company and is assumed to be in the houses, but the fixtures and stoves and water heaters the company puts in are not there.

Q. Now in making up your figures for the purpose of
1100 finally arriving at your conclusion, that is taking the figures as you worked them out, in a hypothetical plant from the sum total of the going plant to arrive at this so-called going value, you have worked out this scheme by which the hypothetical plant after its installment gradually grows up to the point where it will be furnishing about the same amount of gas and about the same number of consumers as the going plant, is that right?

A. Yes, sir.

Q. And in doing that now, making your figures on your hypothetical plant, you have figured every single item of cost?

A. Not every item.

Q. Every single item of cost, or rather you have placed a value yourself upon every single item of material and labor, and machinery, use of money, that is required to bring the plant up to a point where there is nothing to do on the part of the consumer but to attach his house appliances, is that right?

A. That is not quite right. It goes beyond that necessarily, to the point at which these appliances are connected up and in use to the extend now found in the city of Des Moines.

Q. Last question repeated.

A. That is not right.

Q. What have I left out?

A. You have to develop the business until it will bring about the demand.

Q. Develop business how?

A. You are ready now to supply the gas appliances in the average consumer's house, and the average consumer, we will say, is ready to put in one of the appliances, but the average consumer will not put in any more than one, and a period of development is re-
1101 quired before he will have taken on as many appliances as he will have to-day in the city of Des Moines.

Q. You get at that period of development by a process of reasoning and figuring that must necessarily be based upon a town of the size of Des Moines, without anybody in it?

A. That is not so.

Q. Without anybody in it that has been educated up to the use of gas?

A. No, sir.

Q. What do they have to do in order to get them to use gas other than what is covered when they get the gas piped up ready for the house fixtures?

A. As I understand it that is not what you started out to say.

Q. Well, that is what I tried to say.

A. I will answer the first of these two questions. You do not arrive at the rate of acquisition of business in the hypothetical plant by studying nor making figures concerning the hypothetical plant.

You apply your judgment in the matter through having had experience in smaller towns and larger towns in exactly that kind of work.

Q. That is what I wanted to get at; what do you mean by that kind of work?

A. The development of business.

Q. Well, how?

A. By advertising, soliciting and demonstrating.

Q. Advertising what?

A. The use of gas and gas appliances.

Q. To those people who ought to know all about it?

A. Yes, sir.

Q. You have to go through an additional process of education through advertisement and so on?

1102 A. You have to maintain that work. Even the Des Moines Gas Company, with all its present connections, cannot afford to stop advertising.

Q. The kind of education you are talking about is theoretical and not practical?

A. Distinctly not.

Q. The education you think they already have is a practical education that comes from the use of gas?

A. I am not saying that a person already educated must be again educated to that same stage.

Q. What do you mean?

A. He must be carried along and advised as to the new developments that come on and his neighbors have to be advised about this intelligence.

Q. That is the new population?

A. You have to keep advising them always.

Q. It is for that advice you figure out this $583,000?

A. Distinctly not.

Q. What part?

A. A small part, which you can find by looking at the figures.

Q You find it?

A. I cannot without going through some calculations there.

Q. Give me your best judgment about it, I'll be satisfied without your going through it.

A. By that you mean to ask me what proportion of this $583,00- is required for the additional education of the community?

Q. Not additional education, the education you say is necessary to bring about the sale of gas.

A. The education as such represents a very small fraction, but I should say the total education which you are describing would be covered by five thousand dollars through this period of seven years.

Q. Five thousand dollars, you think that would be about

1103 right?

A. I should judge so for the feature you are describing.

Q. That would be for the advertising?

A. Distinctly not.

Q. How would it be expended?

A. That is for the—as you choose to use it, education of people who already have this education.

Q. What does the company do?

A. The company spends the money for advertising, solicitors, and demonstrators, people to go around from house to house to educate the cooks and housewives to the exact manipulation of these appliances.

Q. When they spend money for advertising what account does that go to?

A. That goes to new business.

Q. How is it charged up on the books, as operating expenses?

A. It is a legitimate operating expense.

Q. The consumer pays that right along?

A. Yes.

Q. Then on top of that he would pay the other five thousand dollars?

A. If he didn't pay that, he would never get the reduced prices in gas.

Q. On top of that you figure he must pay this additional five thousand?

A. That is my rough estimate, what you might possibly squeeze out of this thing in seven years. It is not an item I had thought of at all.

Q. This five thousand dollars—what is involved in the balance of it in a general way?

A. The figures will show a whole lot better than I can say off hand.

Q. We do not really understand your figures.

1104 A. If you ask specific questions, I will explain them.

Q. Question repeated?

A. I can only answer that by referring you to the figures.

Q. I don't want to be referred to the figures, I want you to refer to them and tell me after you refresh your recollection from them, if you have to do that, then give me the information the question asks for.

A. You want to know what makes up the balance of the development expense?

Q. Yes, in a general way.

A. There would be the cost of the salaries in the new business department.

Q. That would be charged to operating expenses?

A. Certainly.

Q. What next?

A. The cost of advertising.

Q. I have just covered that—five thousand dollars.

A. You have not.

Q. That wasn't any part of this five thousand dollars?

A. You might take it out of advertising if you want to. You haven't covered the period of seven years.

Q. What did you intend to cover?

A. I didn't intend to cover any such item as you bring up.

Q. What did you intend to cover?

A. Just advertising.

Q. How much would you say for advertising now?

A. That is spread through a series of years shown in the report under the head of advertising.

Q. What is the sum total?

A. I don't know.

1105 Q. If you don't know, the Master don't know, and neither do the rest of us know.

A. It is not shown that way. The unit cost cer thousand feet of gas sold for the year——

Q. I am talking about the advertising item?

A. That is exactly what I am talking about. I can figure it out but it will take me about an hour to do it.

Q. Well, figure it out.

Witness makes calculations.

A. As I understand you, you want the total figure I have included for advertising by the hypothetical plant during the period covered by this calculation. That total is for the hypothetical plant $67,802, as near as I can calculate it from these units.

Q. Now, if the Master or counsel desire to separate these items they will have to do as you have taken them up and figure it out?

A. In the absence of the figures I have in my office they will have to.

Q. Can you bring them?

A. I used the units wherever it would save time.

Q. Give me those figures again?

A. For the going plant $47,964. In other words, according to my figures the hypothetical plant will spend for advertising through the period under consideration $19,838 more than the going plant will spend for that same item through the same period.

Q. The going plant was how much?

A. $47,964. You will please remember I am working that with four decimal places here, and it might not be absolutely accurate.

1106 Q. That figure is reached by the process of percentages and not by the actual figures from the books?

A. That is reached by an allowance per thousand cubic feet of gas sold.

Q. It is not figured in the books?

A. No.

Q. It is your own estimate of what the advertisement expense of the going plant is?

A. It is based primarily of course on what I would judge the existing company is spending at this time.

Q. But you made no effort to ascertain what the existing plant was paying?

A. Yes, I did, but didn't use those figures.

Q. The figures you got were much less than those used?

A. They were not the same: I don't remember whether they were less or more.

Q. At any rate, you disregarded them?

A. Yes, sir.

Q. Of course, to arrive at the $47,964, you adopted some method of percentages?

A. You might call it percentage. It happens to be based on percentage. My units is so many cents or parts of cents per thousand cubic feet.

Q. In all of your computation wherever the question of rate enters into it at all, you proceed on the theory that the rate was a dollar?

A. Oh, yes.

Q. The hypothetical plant was how much?

A. $67,802. That is the total expenditure I estimate will be necessary for advertising the hypothetical plant throughout the period of seven years.

1107 Q. Now, Mr. Lea, I notice on page 112 of Exhibit 20—operation and maintenance hypothetical plant. I notice the tables there on that page under the head of new business, you say it is based on cost per thousand accounted for; that means these figures rest upon the sale of gas, that is, the gas that is actually received by the consumer at a dollars per thousand?

A. I have explained what gas accounted for means; it is not just what you said, but I presume what you mean. Gas accounted for is the total of gas that passes through the consumers' meters, plus the gas used in the office of the company and works of the company and plus the gas used on the street lamps.

Q. And at a dollar per thousand where the consumer gets it?

A. Yes, sir.

Q. Under that head you have advertising, appliances and demonstration; just what do you mean by that?

A. It is necessary in order to get those appliances in use generally to have people come along who are familiar with them to demonstrate the use of those appliances, either in the show room of the company or specially rented halls. There are demonstrators who make their living going around the country and teaching the people the use of those appliances.

Q. That sort of business is being done by the present Company?

A. Yes, sir.

Q. In its retail office or the room up on Seventh Street?

A. Yes.

Q. They carry a stock of fixtures and stoves and appliances used in connection with the gas heaters and gas lighters, do they not?

A. Yes, sir.

Q. And do a regular retail business?

1108 A. Yes.

Q. Now it is for demonstrating the use of these appliances in the store that this item is applied *to* if it was applied at all to the going plant?

A. Yes, of course in the hypothetical plant we would have to do more demonstration than a plant which is already going through many years. You are taking on a very much larger volume of business per year and you must consequently deal with a very much larger number of prospective consumers in the year.

Q. But however that may be, it is for that same work you have allowed this in your hypothetical plants, this figure of .1499 on page 112?

A. No, that figure is .0177 for 1913.

Q. It is .0177?

A. Yes.

Q. Now, the next thing is expense soliciting; how do you distinguish that from appliances and demonstration?

A. The appliances and demonstration is handled always in the office of the company, or in some other place rented for the purpose, and the demonstrator stays there and the people come and listen to this lecture and demonstration; usually a woman is the demonstrator; the solicitors or canvassers or new business representatives of the company go from house to house throughout *that* various districts of the city explaining and arguing with prospective consumers the merits of the gas and the reason why they should put it in and all that.

Q. I suppose a good deal of this demonstration is done in the homes?

A. Some of it is done in the homes. They have some women who go from house to house and explain even beyond the lectures and demonstration down town, explain in the kitchen to the con-
1109 sumer a great many details and methods.

Q. This expense of soliciting you have in your hypothetical plant for the year 1913, if I read it right, .1499, is that right?

A. That is right.

Q. That I suppose is reached in the same way you reach your advertising figure?

A. By the exercise of my own judgment as to the amount of work required in that department for that year.

Q. Well, now, I would like to stop there long enough to ask you, Mr. Lea, for the basis of that judgment; how do you arrive at those figures—I don't mean how you figure it out here, what information do you have, what experience do you take upon which you rest figures of that kind?

A. I have been connected very directly with the development business of exactly this character in six, seven or eight different cities.

Q. Yes, I know, but you are dealing with Des Moines now, and there was but one gas plant here and you knew that when you came here?

A. Yes.

Q. And you knew too that it had been the only plant here for a good many years?

A. Yes.

Q. Why didn't you, in order to assist you in arriving at the cost or expense of that kind of work in Des Moines, go to the figures of this concern itself and see what is had been paying?

A. Because, before I made any of those figures I had made a study of the town that had satisfied me there were no conditions in Des Moines that were peculiar to Des Moines, that the obstacles and

expenses to be incurred in the development of the gas business in Des Moines were approximately those of other cities of like kind throughout the country, and I had sufficient experience of
1110 my own on which to base an estimate.

Q. Where had you ever operated a gas plant in a city like Des Moines?

A. I didn't say I had.

Q. In what way did you get this experience?

A. I have operated plants in cities larger and smaller than Des Moines and have the expenses for corresponding work.

Q. In other words, you fixed just such a figure as you in your own judgment would have expended if you were operating a plant in the city of Des Moines up to that per cent of efficiency or condition that in your judgment would serve the town or city?

A. I placed such a figure as appeared to me fair and reasonable, covering the point involved; such a figure in other words as I would explain to a prospective buyer of this plant that he might have to provide for in his future operations.

Q. Now, Mr. Lea, you started by saying, or started out to put a value on this property, such a value as in your judgment a purchaser would want to pay for the property of he was going to buy it?

A. Yes, sir.

Q. You also included or had in your mind at that time that the plant if it were bought would be operated in Des Moines?

A. Certainly.

Q. And under Des Moines conditions?

A. Certainly.

Q. Now, then, this plant had been in operation according to your figures and some maps you make here which you furnished to the Master as showing the growth of development of the Gas Company; now during those years that you covered in your maps and in your figures the development and growth of the Des Moines Gas Company was about the usual development and growth of Gas
1111 Companies in towns of this size?

A. In some respects; in other respects it has been abnormal.

Q. Of course you knew, didn't you, that you could go to Mr. Haines, the manager of the Gas Company, or to the bookkeeper and ascertain just what amount the Des Moines Gas Company had been expending or paying in expenses for soliciting to acquire the business that they had acquired in Des Moines?

A. I did not know that at that time. I did not understand the method under which the books were kept, consequently I did not know what they meant by the headings employed.

Q. Did you make any inquiry?

A. Not at that time?

Q. Suppose if you had gone to Mr. Haines or his bookkeeper and inquired of him—take the last five or six years growth of the Des Moines Gas Company business has been quite large in the last five or six years?

A. Yes.

Q. Now, if you had gone to Mr. Haines or his bookkeeper and they had advised you that their total expense for soliciting the business for these years was about one twentieth of what you figure——

A. For what years?

Q. For these four or five years growth?

A. You are assuming that?

Q. If they had said to you that the expense of soliciting this business in Des Moines, the money they had acqually paid out was one twentieth of what you figure in your hypothetical plant, would you have accepted their figures, or would you have gone on in the way you did?

A. I would certainly have accepted their figures if they
1112 could have shown me they were correct.

Q. What do you mean by that?

A. I would have to admit my judgment had been very erroneous.

Q. If as a matter of fact—take the last year for instance—let us assume it was an average of the five recent years—suppose their books had shown that for this item of expense they had only paid out one-twentieth of what you figure would be necessary in your hypothetical proposition, which figure would be correct and which figure ought the Master to take, your figure here or what they actually paid, as being the measure?

A. If the books had been accurately kept covering all the elements of this item and the books did show the total cost of this work to have been one-twentieth of what I said, then the Master should take the figures from the books and so should I.

Q. You made no attempt to get at that as I understand it?

A. I didn't consider that necessary.

Q. You made no attempt to get at the actual figures?

A. I did not at that time, no sir.

Q. Going back just a minute to your advertising, you have assumed here, and I want to go into this to test your so-called comparisons, you have assumed that the poing plant which is the existing plant, the Des Moines Gas Company, spent $47,964. for advertising for the first five years?

A. No, sir; I have not.

Q. Well, how is that?

A. I have assumed that during the years 1911, 1912, 1913, 1914, 1915, 1916 and 1917, seven years immediately following the *the* date of this inventory, the Des Moines Gas Company will have spent in the exercise of good business judgment a total of $47,964. for advertising.

Q. As I read the figures the hypothetical plant you begin
1113 with in 1913?

A. No, there is an advertising expense prior to that.

Q. Do you count seven years for the going plant and five years for the hypothetical plant?

A. Certainly, because seven years is the figures of the hypothetical plant in catching up with the going plant.

Q. The hypothetical plant according to your information, not

what the experience of the Des Moines Gas Company shows in its past history in Des Moines, or any other gas company in Des Moines, you base simply upon your judgment as to what would be a proper business management, and you say the hypothetical plant ought to spend $67,822. in these five years?

A. That total is based on my judgment.

Q. Without reference at all to the experience of the gas company that is the subject of inquiry here, or any other gas company in Des Moines?

A. I can't say that.

Q. Without any reference to the actual amount that has been used for that purpose?

A. Of course, before I made my figures I familiarized myself with the operation here.

Q. How long have you spent altogether in Des Moines?

A. I suppose five or six weeks.

Q. In that time you acquired sufficient information and knowledge of the value of real estate and buildings and the value and cost of labor, laying brick, excavating in sand and clay and all that sort of thing?

A. With the qualification I have given in the record that I did not state my valuation of the real estate was an expert valuation.

Q. What kind of valuation was it?

1114 A. It was based on the investigation I could make in the time I had.

Q. Was it a mere guess?

A. No, it was my estimate. I don't claim any specific value for my estimate on real estate.

Q. If you will pardon me for going off on real estate for a minute, you knew how much ground they had?

A. Yes.

Q. Now if you had wanted to be entirely fair to both sides, don't you think you would have made some inquiry of the company as to how much they paid for the land, and how much money they actually had invested in it, in order to help you in arriving at a fair judgment as to its value?

A. I made such inquiry.

Q. What did they tell you they paid for it?

A. I don't remember.

Q. You have it in your figures?

A. I have some data of what they paid certain individuals, and perhaps seven, eight or nine men I consulted around town as to the value of real estate.

Q. Who were they?

A. I would have to look into the record; I don't remember the names.

Q. I wish you would bring in with you in addition to the figures and records I have asked for, the names, if you can get them?

A. They are in Chicago.

Q. Of the parties you consulted about the value of real estate,

and also bring us the figures of the company given you as to what they paid for the real estate?

A. If I can find them.

Q. You have all those figures yet?

1115 A. I did have them.

Q. You don't want the Master to understand that any data now, upon which Exhibit 20 is based, is not where it can be promptly produced?

A. It might be that some of the notes I had on real estate cannot be found; I may have thrown them away, because I found some real estate down there was valued higher than I thought this property was worth. I put it in at a dollar a square foot and I thought that would meet all the requirements. I found the property worth a great deal more than that from the reports.

Q. Who gave you a report of any property down there?

A. The owners of property located almost identically to some of the property of the Gas Company, except it is on the west side of the river.

At this time an adjournment was taken until 1:30 P. M.

1116 1:30 P. M. THURSDAY, *July* 27, 1911.

HENRY I. LEA, being continued on cross examination by Hon. H. M. Byers, testified as follows:

Q. What I was inquiring about at the time of the adjournment was the information that the company gave you with respect to the original cost of this real estate?

A. Your questions I understood it was concerning property which I stated I found to be more valuable than the figure I had used and this figure covering property located under practically under same conditions as that of the company.

Q. That particular question, of course I remember your answer was that the property that you found was more valuable was somewhere in west Des Moines?

A. It was that piece of ground which is most nearly identical with that of the company of all of the property in the city of Des Moines.

Q. Now where was that?

A. It was on the west side of the river directly opposite the company's property and between the same tracks that Block "C" lies between.

Q. Where did you get your information about that?

A. That is Block 36 between southwest First street and southwest Second street and between Vine street and Market street, lot No. 6 in that block is the Kratzer property.

Q. Kratzer Carriage Co.?

A. Kratzer Carriage Co., and I was informed by an officer of that company that that piece of ground 66 feet by 132 feet was

1117 worth $20,000. That is $2.29 per square foot. I asked Mr. Mills, of the White Line Transfer Storage Company

what that particular lot was worth and he said it was worth $25,000 or $2.86 per square foot.

Q. Just as it stood?

A. The property with no buildings.

Q. Just as it stood?

A. I have forgotten whether there are buildings on it or not, but my price is based on the ground alone. The lot adjoining No. 6 is No. 7, the same size as No. 6, which was held by Mr. Walker of the Kratzer Carriage Co. at $15,000 or $1.72 per square foot.

Q. That is what he asked for it?

A. That is what he said it was worth. Mr. Mills said that same Lot was worth $20,000 or $2.29 per square foot. Across the alley is Lot No. 8 which the Kratzer people through Mr. Walker said was worth $15,000 and which Mr. Mills said was worth $20,000. Lot No. 9 Mr. Walker said is worth $20,000 and Mr. Mills says is worth $25,000 $2.29 and $2.86 respectively per square foot. Then I learned that the government had paid $150,000 for the post office site. That is all the information I had on that, I didn't get the area.

Q. So then you were anxious so far as the real estate examination anyhow you did make a- effort to find out something about local conditions and local valuations?

A. Oh yes, but I did not make enough of a study of it to qualify.

Q. Now did anybody tell you—I presume after you got these figures you consulted with Mr. Haines and the other managing officers here of the the gas company about these values?

A. I asked them concerning some values and asked them whether they knew of any sales in that neighborhood. I asked each of the men with whom I talked things of that kind and the general
1118 impression I got was that this property should be worth certainly at least as much as correspondingly located property in other cities which I knew to be worth a dollar a square foot as the minimum.

Q. Did any of these people tell you, the managing officers of the gas company or anybody else for that matter that values in West Des Moines were no criterion whatever as to values in East Des Moines?

A. I did not ask them as to that.

Q. Did you find out while you were making your inquiries that the values in west Des Moines were from three to twenty times as high as similarly situated property in east Des Moines?

A. I was making a study of the values of the property used by the gas company in view of its use and the next most attractive piece of ground that I could find in the study I made was this piece directly across the river and I took particular pains to find out who owned that property. I think the gas company told me who owned it, or perhaps they didn't I don't remember that. I know I went down there personally and seen Mr. Walker.

Q. Did you make any inquiry as to the holding value or selling value or selling price of property around the gas company?

A. Yes, sir.

Q. Were you furnished with the information that the property that the Letcher-Jaeger Manufacturing Company—that is not the correct name, but a manufacturing concern just east and north of the gas plant, what that sold at recently?

A. I don't remember that name, but I did go to each of the surrounding establishments and did get what I could in the way of information on real estate values from these people. Each
1119 of the surrounding industries I went to.

Q. You found it very much lower, the asking price over there than on the west side?

A. I found the asking price lower but found some asking prices more than I have used on the east side.

Q. Where?

A. I would have to get the records from my office, I just remember I found some values higher than I used on the east side of the river.

Q. And so you finally, from what information you have stated to the Master, you came to the final decision that $215,000 was a fair price is that the amount?

A. A dollar a square foot whatever the area is, is what I consider a fair price for the real estate, fair value.

Q. You figured it $215,993?

A. $1.00 a square foot is the price I put on the real estate. I have forgotten what the area is. There was $1.00 per square foot makes $196,358 and to that I have added ten per cent for the difficulty of obtaining contiguous lots at this time, $19,635. Then I have added for sinking test holes, grading and filling $5,000 more making $220,993 for the real estate, with- the addition of taxes during construction nor the loss of interest during construction.

Q. You have told now how you arrived at that value?

A. Yes, sir.

Q. Did you have anything else at all that you considered as an important element in arriving at that value than what you have already stated?

A. Nothing more than I have covered in a general way.

Q. What did the company tell you they paid for the property?

1120 A. The company didn't tell me what they paid for this property.

Q. They furnished you with figures?

A. I got from the officers of the company some records or at least some figures as to what some pieces in this neighborhood have sold for.

Q. You told me before dinner they furnished you figures, showing what this property had cost them?

A. No, I didn't mean to say that. There may be in the list they gave me a record of one or more of the pieces, the prices the present property of the gas company, but I did not receive from the company any statement showing the total cost of its real estate or the cost of each of its pieces of real estate.

Q. Didn't the company at some time earlier in the period of your

investigation furnish you an itemized list of all their property, that is all of their physical property if I may use that term?

A. Yes; they gave me this list.

Q. I hadn't quite finished the question. Or such other information with respect to its cost as they had as you understood it?

A. No, sir.

Q. I thought you stated in your examination here the other day, you did state it I am sure two or three times that in the list of property that was furnished to you that the figures furnished by the company there were several items that you did not agree with the figures

A. There were.

Q. And prices and values and that you disregarded them and took your own?

A. That is correct.

Q. That is the list that I should like to have. Have you got that with you?

1121 A. That is this list, the inventory.

Q. Is that the only list they furnished you?

A. That is. This inventory and here are some additions to it covering works tools, distribution tools and office furniture and stable equipment. These separate additions were given me later.

Q. I know, but I am getting at the list of property which was furnished you first. Not this completed book you have now because as I understand it you didn't get that until a long time after you had been at work?

A. I got first a book about the same as this but in which it was discovered some errors had been made in the calculation of the amount of brick in some of the buildings and that book was taken back and this one substituted and this is the book on which my report is based as to the dimension of buildings and characteristics of machinery and holders, etc.

Q. What else was it. Some time before dinner you remember I was inquiring about figures and the list that was furnished you by the company and you said you didn't have it here, but you would get it?

A. Yes, sir.

Q. Well that was here wasn't it?

A. That was not here.

Q. Copies of it were here?

A. No, sir.

Q. That is different from any list we have here is it?

A. This is the same as you have with the exception of some of these items we found upon going over where the number of brick were in one case figured on the wall measure and in another figured on cubic contents and where these differences have not been checked.

1122 Q. That book which you have there from which you made the valuations then is not like Exhibit No. 15 in all respects.

A. This is the book having the differences as compared with the copy of the inventory given the Master, the net result of these differ-nces being a sum of $14.00 approximately against the company.

The items are all very small and inconsequential, not enough to affect any figure that I have submitted.

Q. Then if I understand you, and this is a diversion due to that particular answer, if I understand you then after a complete checking up of both items of property and quantity of property and the figures that were made to represent items and quantities you found a difference of $14.00?

A. That is the net result of the differences, some of these differences were against the company and some were for it, but the net result was $14 against the company.

Q. The net result of a careful painstaking checking up of all these things I have mentioned finally resulted in a net difference of $14.00.

A. Yes, and I can show you what these differences are in detail if you want them.

Q. In that connection I do not quite understand your former answer in which you said you had made an over estimate in some matter of $10,000 or such a matter?

A. An over estimate?

Q. Yes.

A. What was that?

Q. Well I don't remember. Mr. Brennan suggests it.

A. I don't remember either.

Q. Didn't you say in one of your answers this forenoon or on direct examination you had originally estimated the cost of
1123 construction something like $10,000?

A. This morning?

Q. No in your direct examination.

A. If you might recall the item it was maybe I could remember.

Q. I don't remember it, Mr. Brennan called attention to it. Anyhow after a thorough and complete checking up you found the result you have just stated?

A. Yes, sir.

Q. Then if I have your testimony right in my mind *yp* to this point on this question the list of items of property, the quantity and so forth that was furnished to you by the gas company?

A. Yes, sir.

Q. And was not taken by personal examination of these items and the personal making of the inventory.

A. I did not personally make the inventory. I did personally check all of the prinsipal items.

Q. Not for the purpose of making it personally?

A. No, sir; for the purpose of seeing there was nothing in the inventory that could not be shown on the ground.

Q. And it was all furnished by the company or somebody for the company in the first instance?

A. Yes, sir.

Q. Then if I understand you you did at some time take time to at leasr make a careful and painstaking examination in so far as it was possible to be done to satisfy yourself that there had been no padding of the inventory either inadvertantly or any other way.

A. I made an examination which did satisfy me there had been no padding, but it was not made for that purpose.

Q. But you made the examination and for the purpose of satisfying your mind now as an impartial expert in engineering
1124 matters that the measurements that were furnished to you were generally correct.

A. I checked enough of the measurements to make me believe that the balance were correct.

Q. And you pursued that method as to practically every bit of this property that you placed a value on didn't you?

A. I could not follow the same method in detail on the distribution system.

Q. No, but as far as you could.

A. Yes, as far as I could.

Q. And it is your personal judgment isn't it and you are *so* willing to go on record here that the list as furnished you was correct?

A. Substantially correct yes.

Q. Now just at this point to satisfy my curiosity than to have a connected cross examination here. I wish you would turn for me to page 95, the second chart in Exhibit 20. Now if I understand this chart—you call it a chart?

A. Yes, you might call it a chart.

Q. What would be the correct term for it if there is any?

A. Probably more often call it a curve sheet.

Q. Then I will use that term, the second surve sheet as my book is pages on page 95. Now if I understand that sheet as it has been worked out here by you it purports to show the development and growth of the Des Moines Gas Company up to 1910?

A. Yes, sir.

Mr. GUERNSEY: What part of 1910.

A. The end of 1910.

Q. And it shows it in all of the plant's relation to population, mains, meters, and sales per meter and sales per mile of main
1125 and sales per capita and total sales.

A. It gives some information concerning each of these items.

Q. You exhibit the growth and development of the plant by these curve lines and represent population and years and so on by figures at the margin of the sheet?

A. Yes, sir.

Q. Now did you make that chart or that sheet after a personal examinarion of the records of the company upon which a truthful sheet showing the development and growth of the company—now I mean truth in the sense it would represent actual figures and facts—did you make it from an examination of the books and records that show these facts?

A. I didn't make any of the original cur*b*es shown leading up to 1910, up to the line showing 1910. I may say that these particular curves which were photographed to reproduce these sheets were made in my office and under my direction but they were taken from material supplied to me by the gas company. The curves beyond the line 1910 are my curves, all of the extensions.

Q. Now to get what I want before you—in order to make up a curved sheet such as this one to represent a real gas plant, one of the things that would be necessary for you to have would be the annual construction account wouldn't it?

A. No, sir.

Q. Another of the things necessary for you to have would be the annual operating expenses wouldn't it?

A. If I were making the lower curve on the third sheet I would have to have the operating expenses.

Q. There is nothing of operating expenses on the second sheet. I want to confine myself now to the second sheet. The second sheet purports to show the total sales and the sales per meter and

1126 sales per mile of main.

A. Yes, sir.

Q. Now in order to reproduce by the curve sheet method the growth of the sales of the Des Moines Gas Company from 1888 to the latter part of the year 1910, it would be necessary for you to have the gross annual sales.

A. Yes, sir.

Q. Did you have them?

A. I didn't have them as a separate statement. I didn't have the—I am not sure that I had all of the figures back to 1888, but I had them back for quite a ways, fifteen years or more I am pretty sure.

Q. How could you make a truthful representation upon a sheet of this kind by the curve sheet method of the growth of the sales of a plant covering a period of years without having the annual sales?

A. I didn't say I made the curves for years preceding 1910. I checked them with such material as I was able to get and found on every point I checked they were correct.

Q. They were made in your office were they not?

A. These particular curves which were photographed in making this sheet or any of the sheets in the these reports were made in my office, but they were copied from curves submitted to me and a great deal of the data from which curves were made I had previously in checking the curves established my own confidence in them.

Q. Do you mean you didn't make any of these sheets at all?

A. I mean I made everything on these sheets beyond the line of 1910.

Q. But nothing before 1910.

A. And that I checked the material befo-e 1910 with such data as I had and in a sufficient number of times to satisfy myself that the curves were correct.

1127 Q. Let's take sales, since this sheet was made by somebody else, and therefore if you testify about it at all, it must be upon the correctness of your checking. Now you are going to check the total sales say from 1880 to 1891 because that seems to be about the point where there is a substantial rise in the line.

A. You are looking at the population line?

Q. I want the sales line, that begins with 1880 doesn't it?

A. 1888.

Q. Begins at 1888?

A. Yes, sir.

Q. I suppose in order to check this you had the gas company's statement of their gross sales for the year- 1889, 1890 and 1891.

A. Yes, I believe I did.

Q. Do you still have those?

A. I believe so.

Q. Then to check further you of course had the statement *ff* the company showing their annual sales for 1891, 1892, '93 and '94 did you not?

A. I believe so.

Q. Then it is true isn't it, that you had the company's statement of the annual sales for each of the years from 1888 down to 1910?

A. I am not sure I had them back as far as 1888. I am not sure how far back they did go, but it seems to me I did have them back to 1888.

Q. Where is this material?

A. Chicago.

Q. Didn't you consider that as an important part of your exhibit here No. 20 that you produce as being the result?

A. No. I considered that as matter that might easily be proven on the ground at any time.

Q. But suppose what we should develop on the ground was
1128 not w*ah*t you had. Then would it be important to have it here?

A. Not at all in this respect because this curve back here is no portion of the curve that is used in determining the extension. These lower portions of the curve are not portions used *in* determining extensions. What we need for extensions is a history say of the last ten years.

Q. Well did you have the figures for ten years?

A. Yes, sir.

Q. Will you produce them too?

A. I can get them from Chicago I believe.

Q. The figures you used are what we want. You will have those brought in will you?

A. If I can locate them yes.

Q. I don't know just what you mean, if you can locate them. You don't mean that they have been destroyed at all do you?

A. They are in Chicago in my files, but I don't know whether I can get my stenographer or either of the men in the office to find them, whether they can know exactly what they are getting or what I want or not, but I believe they can.

Q. I suppose it would be equally within the truth for me to say that in your office you regard it as highly important to preserve all of the memorandum or figures and facts upon which you base this kind of a report do you not?

A. Yes, sir.

Q. And they are all properly filed and preserved?

A. There is an attempt made always to properly file them but

they are not always properly filed, we slip up on some of these things, get them in the wrong place.

Q. Do you think you slipped up on any of this, is that what you have in mind?

1129 A. No, I don't thi-k so.

Q. So you didn't being with you and haven't with you now the memorandum that would have to be used to check the correctness of the matter that appears in this Exhibit 20?

A. Not of the matter back of the line *on* the year 1910. All of the matter from which the curves following the year 1910 are made will be found in my report.

Q. All of the matter following 1910 is speculative is it not?

A. It is speculative but based on history.

Q. There are no facts or figures anywhere except as you take them from your mind upon which any of the information in Exhibit 20 after 1910 was made.

A. There certainly are no facts on future developments.

Q. That is all purely speculative. The memorandum back of 1910 none of it is here as I understand you.

A. I presume all of it is in the office of the companny but I don't know that.

Q. What you used yourself, I am not talking about what may be found in the company office, but what you had.

A. No, what I used is not here.

Q. None of it?

A. No.

Q. I wish you would see it is all forwarded here, the memorandum you used in preparing Exhibit 20. Now going to the next page which is paged in my book as 96, and is a curve sheet I suppose the same name applies to it that applies to the other?

A. Yes, sir.

Q. Now I notice on this curved sheet among other things gross revenue beginning somewhere at a point near midway between the year- 1886 and 1887 and proceeding by years with an upward

1130 tendency on your curve line until it strikes or intersects the line upon the margin of which is found the year 1910?

A. Yes, sir.

Q. Now that is supposed to represent—that line between these points was intended by you to represent to the Master and counsel here the actual annual gross revenue of the Des Moines Company, isn't it?

A. Yes, sir; as applied to the city of Des Moines.

Q. *Q*ell the Des Moines Gas Co. don't have a gas plant anywhere else do they?

A. I understand they supply gas in Valley Junction.

Q. When you say applied to Des Moines you simply mean you do not take in Valley Junction, that is what you mean?

A. Yes, sir.

Q. Who made this curve sheet?

A. It was prepared from the record of the company by some of the company's engineers, I don't know which ones.

Q. Some of what company's?
A. Des Moines Gas Co. And I likewise checked these curves with information given me.
Q. Where was this made do you know?
A. You mean the original curve I presume?
Q. Yes, I mean the original curve?
A. I believe it was made in Des Moines.
Q. Or was it made in Philadelphia?
A. I don't know.
Q. I have got a wrong impression of your original testimony. These curve sheets are not yours?
A. Only as I have said repeatedly the extensions beyond the year 1910. The historical matter is obviously not mine, it
1131 is from the records of the company.
Q. You didn't make them from 1910 did you, you simply furnished the information for somebody else.
A. I didn't make the marks myself, but I had men in the office who made them, I gave them the figures and they made them. Figures upon which these various dots were to be located and then a line run from them.
Q. Let's see if I get this right. Of course this sheet was not prepared by any person until after all of the necessary basic facts and information had been gathered up?
A. No, sir.
Q. You made up the information that was to be used beginning with the end of the year 1910?
A. Yes, sir.
Q. That is the beginning of 1910 here as it appears on this chart where the figures 1910 are is the beginning of your work, that is what I speak of rather than 1910?
A. Yes, but it represents the end of the year 1910.
Q. The information you got begins on this curve?
A. Yes, begins on the 1910 line.
Q. That information you m-de up?
A. Yes, sir.
Q. Then the information with reference to all of these lines back of the year 1910, using the word back in connection with the sheet itself, was prepared by somebody else?
A. Yes, those curves are the result of figures taken from the -ecords of the company.
Q. Now what I want to get at is this. This Exhibit 20, the business of making this up was turned over to you was it not, I don't mean the mechanical work.

—. ——.

1132 Q. Putting it together and making the report.
A. My work covered the making of the report in which it was incidentally that I should include some of the detail. I have not included all of the detail of the inventory for instance.
Q. In other words we are not to understand are we that one part of this Exhibit 2- is your report and part is somebody else's?
A. You are to understand that wha-ver appears in this report is

what I believe to be correct after my own investigation and calculation, but obviously what is taken from the records of the company I cannot say is my own work.

Q. Either you don't understand me Mr. Lea, or we don't get along very fast. Here are some sheets, curve sheets made up by somebody and cresented here by you for the purpose of being used by the Master in this case and from which inferences may be drawn and conclusions reached. You presented them.

A. Yes, sir.

Q. Now I want to know how much you had to do with this Exhibit 20 in its preparation, whether you had the entire supervision of it or whether you just made part of it and somebody else made part of it and you finally at the end concluded it was right and presented it as your report?

A. It is in every sense my report but the material from which the curves shown on these *plates* were made comes to me just exactly as blue prints describing a building company and I used them in that same way. They are not my curves any more than blue prints are my blue prints but they represent what is there and from that I build on these following years.

Q. Whose plan is this that appears on these three sheets, yours or some engineer's?

A. This was made in my office.

1133 Q. No, that is not the question. Now whose plan is it to work this out, who proposed having this sort of a representation made here in the first place?

A. I don't know whether anybody else proposed having anything else like this in his report or not. I know — proposed putting it into my report.

Q. Then you originated it?

A. Certainly.

Q. It originated with you so far as this lawsuit is concerned?

A. Certainly.

Q. If that is true then you did have furnished you by this gas company a statement of the annual gross sales of the company beginning with the year or about the year between 1886 and '87 up to the year 1910?

A. I am not sure that the figures I have of gross revenue run back to 1887. I am sure that they run back far enough to satisfy me as to the accuracy of the curves during the past ten years and that was all I wanted in making my extensions.

Q. That is to say if you just had the material or figures that cover any ten year period——

A. On such an item as gross revenue.

Q. On such an item as gross revenue you would then through some percentage method be able to continue a showing up to the point you wanted carried out whether you had the real figures or not.

A. Not if all I had was gross revenue figures. I would want additional figures.

Q. But you would want gross revenue figures?

A. If I gave my gross revenue on such items I would want for the past ten years I would be perfectly safe in making my estimates of next succeeding several years.

1134 Q. What would be some of these other things you would want in addition in order to make up these three curve sheets so that they would represent the true development and growth of this plant. You would want the annual extension of mains with the annual cost or expenditure for mains would you not?

A. No, sir.

Q. And you would also want the annual per capita information upon which you could figure out per capita sales?

A. Would want information on which you could figure per capita sales yes.

Q. But you would not need mains?

A. I would not need to know the number of feet of each kind and size of main laid each year.

Q. Would you want any information about the mains or what was done about them?

A. I would not need for example some of the figures which are not of the greatest importance here for instance, revenue per mile of main. That is not really an important figure.

Q. Well but it is here?

A. It is here.

Q. You have undertaken to figure it out for me?

A. Yes, sir.

Q. How could you do that without knowing all about it?

A. You don't need to know all about the mains, all you need to know is the total mines of mains in use at the end of any year. That information I have.

Q. Does that simply state the number of miles of mai- without anything in the way of discriminating between large or small?

A. It does.

Q. Was that information furnished you by the company?

1135 A. It was.

Q. Before these sheets were made up?

A. It was furnished to me before I checked these curves. I don't remember whether the information was given to me before I saw the curves or not. It was certainly made up or compiled before the curve was made because the curve could only be made from such data.

Q. Don't the development and growth of an industry of this kind depend to some extent on the net annual income of the company?

A. Does growth depend on the net annual income?

Q. Yes.

A. In what way?

Q. Every way. Could it grow if it did not have a net annual income?

A. I am afraid you will have to try that again, I don't get it.

Q. That is too cloudy for you?

A. Yes that is too cloudy.

Q. Well does it cut any figure at all in making up a sheet of this kind where you are attempting to show the growth and development of a manufacturing plant as to what the net annual receipts of the company out of the business are?

A. This does not purport to show the net annual receipts.

Q. I didn't ask you that. (Question read)

A. That is not one of the things considered or shown here.

Q. (Question read)

A. No, it is not necessary.

Q. Now beginning with the line on page 96, that is the second sheet where the year 1910 appears on each of these sheets, I want to ask you if you made them up on the theory of dollar gas?

A. You are speaking now of the second chart?

Q. All three of them.

1136 A. Well some of the figures on these charts were made while gas was being sold at a dollar net. The charts show which years I think.

Q. Well tell us.

A. The third chart shows that the price of gas in Des Moines went to a dollar.

Q. (Question read)

A. Not on the theory but on the fact of dollar gas.

Q. That is from 1910 to 1918?

A. Yes; from 1910 to 1918 I naturally worked on the theory the price would be a dollar or assumption. 1910 is on the fact of dollar gas.

Q. Now you stated as I remember it that these charts would work out or show about a 40 per cent increase in the growth and development of this company as measured by these items which you show on here from 1910 to 1918.

A. Approximately.

Q. Now will you figure out for the master what it would be at say 90 cent gas?

A. What what would be at 90 cents? What do you want to know?

Q. I want to know where these lines would probably strike if gas were sold at 90 cents?

A. The line showing gas sales you mean?

Q. This line showing gross sales and the line showing total revenue?

A. I can figure it out to show what I believe to be the result.

COURT: How long will it take to do that?

A. About three hours.

Q. Is it necessary to take three hours?

A. Yes, sir.

Q. You can figure out the sales within these years within a

1137 minute or two?

A. What time?

Q. Within these years, what the sales would be at 90 cents instead of the figure here?

A. No I can't figure that in a few minutes.

Q How long will it take approximately?

A. I haven't got the figures on it, to figure the changes of all things entering into the price change?

Q. Consider all the things there that affects the rise of gas.

A. It will take a great deal of time to get it for you if you want to know.

Q. Take three hours to get the sales?

A. I believe so and have it in such shape as I could testify to it.

Q. This is part of the information from all this memorandum and you work out this curve sheet from 1910 to 1918 yourself.

A. Yes, sir.

Q. And it would take you three hours to tell us from your own sheet.

A. To tell you in a way I want it to appear in the record to stand on.

Q. To take your own method of approximating what the difference would be in 90 cent gas and dollar gas?

A. Yes, sir.

Q. All right you figure that out for us any time you will and have it for us tomorrow and we will be obliged to you if the Master does not want to stop now and have it figured out.

COURT: No it consumes too much time.

A. In figuring this 90 cent consumption you want to begin at the end of the year 1910 as I understand it. Assume that the price went into effect at the end of 1910?

Q. Yes, January 1, 1911.

1138 A. Yes, sir.

Q. Now Mr. Lea Mr. Brennan has called my attention here to your statement of over estimate and it is as he suggested, it is on page 772 of the transcript?

A. In connection with the working capital.

Q. Yes. You stated there, those figures as to working capital with the one exception of the item of $142,000 which I used instead of the $141,770, I obtained from the company. I had made my own estimate of the amount of working capital required in a case like this and had arrived at $160,000 but when the company's books were shown me I found I was too high and I put it back to exactly what I have here. Then you did examine the company's books for the purpose of ascertaining whatever facts were necessary for you to know to begin your work of fixing the value of this property?

A. I did on some such things as this for instance. That is the only thing like this of course. Here is money which has no appreciation or depreciation and is fixed by the books of the company and nothing else.

Q. Do you mean to have us understand here that you are testifying that from an examination of the company's books you found that it actually had a working capital of $150,000?

A. I am testifying the records of the company shown to me contain those amounts.

Q. That is not the question. (Question read)

A. Yes, sir. That is $150,000 after you have substracted the ad-

ditions I charged there in the taxes during construction and loss of interest during construction, and the difference between $142,000 and $141,770.

Q. Then if I understand you now, you are testifying that from an examination of the company's books you found aside from
1139 interest and taxes that it had an actual working capital of $141,000.

A. I am not testifying that the gas sales for instance, the gas sales item was obtained by me through study of the ledgers and addition of the individual items outstanding on that account. The summary which I have shown here is a copy of the summary which I received from the company and which I have reason to believe is correct.

Q. Why did you change your estimate?

A. Because on a question like working capital the money actually used is subject to neither appreciation or depreciation if you can get the actual figures they are what the actual present value is obviously, the present requirements.

Q. You had then got the actual figures?

A. Really I considered it was the actual figure that should be used.

Q. And it showed the working capital aside from these items interest and taxes you have referred to of $141,000?

A. Yes, sir.

Q. So you changed your figures from $160,000 to $150,000?

A. Yes, sir.

Q. That is the reason you did it?

A. Yes, sir.

Q. Now this morning, Mr. Lea, you said in explaining your hypothetical p-ant theory that the town in which your hypothetical plant is to operate would be piped, that is that piping to the houses and in the houses would be there, you assumed it was all there?

A. Yes, sir.

Q. Now why didn't you assume too that the gas fixtures, stoves and heaters were all there?

A. Because these are ordinarily put in by the gas company.

Q. But the gas fixtures are owned by the consumer?
1140 A. Yes sir.

Q. Gas stoves are owned by the consumer?

A. Usually they are but the work involved installing -hem, selling them putting them up and connecting them is ordinarily done by the company

Q. The consumer buys those things where he pleases?

A. He does but ordinarily he buys them from the company.

Q. Is that true?

A. That certainly is true.

Q. Where do you know of another gas company that is operating a retail gas fixture store such as they are here?

A. I don't know of any gas company that does not sell retail fixtures.

Q. I know they may have them——

A. And they sell them and they connect them up.
Q. Is that the only place that consumers get them?
A. Certainly not.
Q. So that a consumer owns the gas fixtures?
A. Yes, sir.
Q. In 95 out of 100 cases?
A. I presume they own them in a hundred out of a hundred cases.
Q. The consumer owns the heaters and stoves?
A. Yes, sir.
Q. And buys them where he pleases?
A. Certainly but ordinarily he buys them from the company because the company sells them for less than other people will sell them.
Q. You know that?
A. I know that.
Q. Did you make any inquiry here as to how gas fixtures sold?
A. No, I am saying ordinarily that is the case.
1141 Q. You have to find out ordinarily by inquiry for specific cases?
A. I don't know whether in this particular time the plumbers sell stoves or not.
Q. You really don't know anything about the local situation regarding the sale of stoves?
A. Not in that -espect no sir.
Q. I did ask you Mr. Lea and I want you to rep*ate* so there will be no misunderstanding about it to supply for us at the next session if you can or at as early a time as you can the tables and figures and lists from which you made up these diagrams and curved sheets and other memorandum here that works out this going plant up to the latter end of the year 1910. Now in Exhibit "I" at page- 90 and 91 will you please give me the amount that you have allowed for paving over street mains and services, it is Exhibit "I" of Exhibit 20?
A. These items are shown separately for mains and services.
Q. Just give me the total amount as you have them figured?
A. The total net construction cost of tearing up and replacing pavement over mains and services in use the 1st of January 1911, is $330,558. This is shown by my report.
Q. That is to say now if it should be determined or if it should so happen that within the next few weeks or months all of the present mains that are beneath paved streets as you describe them in your report should be found to be work out and it should become necessary to lay them now it would cost $330,558 to go through the pavement.
A. To tear up and replace existing pavement over existing mains and services, yes.
Q. Now that as I understand you, would be simply the cost of the labor and material in taking pavement up and replacing
1142 it after the pipes were laid?
A. That represents the net construction cost which is the cost of labor and material of taking up and replacing these pave-

ments after having credited to such cost the material recovered from the old pavement when it is taken up in such cases as it is possible to us- the old material over.

Q. Now to make it free from any complications of that kind——

A. It is the net construction cost.

Q. The net construction cost is $330,558?

A. Yes, sir.

Q. In arriving at that figure of course and in giving these figures at all in your report you have assumed that these pipes will be laid under the pavement that is between the curb lines?

A. Where they are so laid now.

Q. Is there any reason why they could not be laid between the curb and the parking?

A. There is so far as this calculation goes because we are reproducing the existing property, not some other property.

Q. Reproducing it exactly the same place?

A. As it is today.

Q. Whether it is the most economical place?

A. Certainly.

Q. I thought you were starting out to make a plant here that would be built upon the most economic plan and of the highest efficiency which could be built?

A. If you read my testimony you find I start out to build a plant as quickly and efficiently as possible and exactly of this type size and characteristics.

Q. You could lay these mains a great deal quicker by putting them und- a part of the street where there were no pavements?

1143 A. But I have no right to figure on reproducing anything except what is here.

Q. Do you build the identical plant, is that the theory?

A. Certainly.

Q. Put your pipes at the most expensive place?

A. No, I put them where they are.

Q. Why do you do that?

A. To reproduce the system where it is.

Q. You are making a new system.

A. It is a duplicate of this.

Q. A duplicate of this in everything except earnings?

A. Everything except what?

Q. Earnings?

A. And it will be a duplicate of earnings if you follow the calculation up there to 1918.

Q. Any way you don't take into consideration the fact that these mains could be laid just as well outside of the curbs as between them?

A. Certainly I consider that just as I have considered that a plant of this capacity which would be possibly built today in view of the modern developments, it would be possible to build a plant having the capacity of this one at less money than this one cost.

Q. That is important, I am glad to have that suggestion. As an expert on gas and you present yourself here as one, you don't want to be understood as saying that these gas mains cannot be just as

serviceable and laid with much less expense and trouble outside of the curbing than they can in the street between the curb.

A. I don't say that.

Q. It is a fact isn't it that they can be laid for much less money?

A. It is a fact sometimes they can be so laid for much less money.

1144 Q. In your hypothetical plat and in your estimate of values of the so-called going plant if I understand you now, you proceeded upon the theory that both your going plant and your hypothetical plant were constructed upon exactly the same lines and in the same way no matter what changes or modern methods might have come in since the organization of your going plant, is that your idea?

A. I made this calculation with the view of determining the present value of the existing property on a reproduction basis which precludes the taking of the reproduction cost of some other kind of property.

Q. (Question read.)

A. In my conclusions covering the hypothetical plant I assume the reproduction of the property as it is.

Q. You can answer that question by yes or no.

Mr. GUERNSEY: He has answered it completely and concisely.

Mr. BYERS: That is your judgment but it is not mine. I prefer to have an answer to the question with the qualification the witness puts on the answer.

COURT: I do not consider that he has answered the question.

Mr. GUERNSEY: I object to the witness being required — just yes or no, because the question carries with it an assumption that there is out of date old fashioned stuff here and the witness by answ-ring yes or no would be compelled to admit that assumption which he should not be required to do, but he ought to be permitted to answer and tell just what he did.

Mr. BYERS: This question simply goes as to whether he proceeded as I asked him, that can be answered yes or no.

COURT: If you can answer yes or no do so.

A. I can't answer yes or no.

Q. If you were building a new plant in Des Moines for the
1145 purpose of serving the gas consumers of this city, in other words, if you had been employed to furnish plans and specifications for a new gas plant with your estimates of cost, would you have furnished to your employer the plans and specifications and figures that you set out here in your hypothetical plant?

A. Do you mean if I had to design a plant to supply the present demand in the city of Des Moines?

Q. The present and the future demands?

A. No, I would not.

Q. Then if I understand you, you don't pretend now or claim that this hypothetical plant that you have worked out here on paper would be the kind of a plant that ought to be construct- and operated to serve the people of Des Moines?

A. To answer that I would have to say first that all gas plants as

old as this have passed through several periods of necessary extensions and there comes a time when they contain units which are not of the size which would best be installed at a later date. If I were desig-ing today a plant to supply the city of Des Moines for instance I would not put in a six foot six water gas sets. Now there are two such sets here. I would put in larger sets. These sets today have a value but they have not the value in their producing capacity as larger units would have. On such items as that the plant which I would design would differ from this. I would have for instance instead of one three hundred thousand foot holder and a million foot holder both for storage I would have one of more than a million and which would be more effective than the two. The million foot holder now in this plan is the natural result of the growth of the plant but if it had been installed at the time of the building of the 300,000 it would have been an unwarranted expense in the maintenance of the property and the price of gas would neces-
1145 sarily have been affected.

Q. Then if I understand you, you do not consider the present plant of the Des Moines Gas Co. as it is now organized as a proper and economic plant for the furnishing of gas in Des Moines at this time and for the future?

A. I don't believe it is quite as economic as a new plant built for this capacity would be.

Q. Now which plant would be the most expensive, or let me put it a little different way. Which of these two plants now, your so-called hypothetical plant that you have worked out or the plant you think we ought to have here would cost the most money?

A. I have made no estimates on the——

Q. Oh, well you can give us that in a general way?

A. No, sir.

Q. You won't even venture a guess?

A. I will not without calculation.

Q. If you come within a million dollars we will be satisfied.

A. No, I can't give any answers on that.

Q. Can't you give the slightest opinion?

A. No, sir. I want to figure these things, I don't want to guess at them.

Q. How long would it take you to figure that out in your mind.

A. Oh I might get it for you in a day or so.

Q. You would have to get some figures you haven't here?

A. I have a lot of records in my bag which I would use.

Q. You can't even approximate what the proper gas plant would be worth as compared with the hypothetical plant?

A. No, sir; I have not even laid the thing out in my mind, I don't know what I would put in.

1147 Q. Then we reach this point don't we that the only purpose you had in your mind when you worked out this so called hypothetical plant and the express purpose for which it was worked out was simply to get at this so called going value that you have estimated at over $600,000?

A. No, sir.

Q. What other purpose.

A. Well the purpose of figuring on the property as it stands so that I might obtain a reproduction value of the property as it stands, not on some other property. You are not valuing the hypothetical plant, valuing the actual plant.

Q. You have given the reproduction value of this going plant. Now what was the purpose of having this hypothetical plant worked out when you already had the reproduction?

A. Perhaps you misunderstand. I have not made two calculations of reproduction value. The reproduction value made of the going plant is the same as used in the going value calculation. There is no separate calculation for the hypothetical plant.

Q. Aside from this one item of going value when you had worked out your reproduction value of the going plant, you could have stopped so far as your report was concerned?

A. Without any allowance for going value you mean?

Q. Yes.

A. Why certainly not. The going value is an attribute of the physical property.

Q. The way you got at it so far as your report is concerned is by working out this hypothetical plant and figuring out a per centage of expenses and cost and growth and making certain credits which you figure out and the so called returns or earnings from the hypothetical plant and the going plant and the difference between
1148 the two finally makes your going value.

A. The reason I used this calculation is that it is the only method I know of for specifically arriving at the accurate amount of going value.

Q. Yes, you told us that this morning several times. We will go back to these figures for paving. That was $330,558. Now does that cover any streets in which the pavement was down before the mains were laid?

A. I presume it covers some, I don't know about that.

COURT: You give $330,558 for tearing up pavements and laying mains including the services, where do you get that?

A. The grand total given here is $277,574 for mains and then you add to that the total net construction cost of house services plus lamp post services and it will give the figure I gave you.

—. There was no trouble to you to ascertain whether or not any of these streets that are included in these figures were paved before the pipes were laid was there?

A. Would not have been any great amount of trouble I presume.

Q. You proceeded on the theory that they were not, that is that these pavements were laid substantially all of them after the pipes were originally put down?

A. I did not. I went on the theory that it was of absolutely no consequence so far as my calculations are concerned whether these pavements were laid before or after the laying of the main.

Q. Can you give us any idea how many were laid before or after?

A. I don't know.

COURT: If I understand you correctly you made your calculation as though the streets were in the condition they were on the 1st day of January?

1149 A. As to paving and the reason back of it was this——

COURT: I understand the reason. I only wanted to know what the fact was?

A. Yes, I took the streets which were paved the 1st of January in which were gas mains and services and have estimated what in my opinion would be the net construction cost of tearing up and replacing the pavement in so far as it would be necessary in reproducing these mains and services.

Q. Now another word or two about the pavements. Do you know about the condition of the alleys that run parallel to these streets that are now paved and for which you have figured the cost of tearing up and replacing?

A. No, I don't know anything in particular about them, I have seen a lot of them but I have not examined them.

Q. Any reason you know of why the mains could not be in the alleys.

A. I know cities that are using it where the cost to run mains in the alleys will be more expensive than running them in the street except where paving is expensive.

Q. Why?

A. Because the risers ordinarily are in the front of the building and you have got to run that much additional if you run from the back in addition to running through the back yard.

Q. That all depends on the character of the building and the occupancy?

A. I have not considered replacing the alleys because they are not in the alleys.

Q. If the Des Moines Gas Co. were required in the carrying on of its business to lay down a main between 7th and 8th street here on Wanut street and that work should be carried on say this week the pavement torn up, the ditch dug and the main laid and

1150 the pavement replaced, all of your expense, so far as the pavement is concerned, and so far as labor is concerned and cost of new material, if any had to be used in the pavement all of that is charged to operating expenses is it not?

A. Certainly not.

Q. What part of it is not?

A. None of it.

Q. What is it charged to, the construction expense?

A. The new work charged to construction.

Q. Suppose it is repair work, where did it go?

A. If repair work charged to repairs.

Q. Finally what general account is repair work?

A. Such portion of the work as is repairs goes to repair account.

Q. In making up the balance sheet for the year don't all of these items go into the operating expenses of the plant?

A. Either as maintenance or as depreciation.

Q. And they all enter into the item of operating expenses when the balance sheet is struck?

A. None of this portion of the cost referring to new construction do.

Q. I am talking about repairs now.

A. Yes, all repairs go in either as maintenance or as depreciation.

Q. New construction like expending a line into some new territory, where is the cost of that carried to on the books of the company?

A. Capital.

COURT: Suppose they have to relay one pipe.

A. Have to take up a four inch and replace it with an eight inch?

COURT: No replace it with the same kind?

A. Then you would have to replace a four inch pipe be-
1151 cause it was worn out or something like that. If you take up one pipe and replace it with another pipe the same size and kind all of the cost of the new pipe plus cost of taking out the old pipe and putting in the new pipe, minus what you may recover from the old pipe if anything, is a legitimate charge against repairs or depreciation. It would go into one account or the other.

Q. That is part of the general item of operating expenses?

A. Whether it goes to repairs maintenance or depreciation it gets back into operation ultimately.

Q. In your Exhibit "E" of Exhibit 20 at page 13, you give the cost of the construction of the distribution system including paving as $1,549,871 do you not?

A. Yes, sir.

Q. Now if you deduct—I wish you would work that out for me if you will—if you deduct the paving from your distribution system as you make it, and give me then the value now as you figure it out of the distribution system without paving.

A. Well I can't arrive at the reproduction value of the distribution system without including paving.

Q. I want to get at it without paving, take that amount of paving out?

A. If I subtract $330,558 from $1,549,871 you will obtain $1,219,313.

Q. That would represent the amount now that you have carried into your figures showing the value of the distribution system less the $330,558 for paving.

A. I have carried the figure in for paving because paving is a legitimate part of the cost.

Q. I say if you take the paving out that is what the fig-
1152 ures would show with paving out, $1,219,213.

A. That would not be the reproduction cost of the distribution system.

Q. What would it be?

A. It would be the reproduction cost of the distribution system minus $330,558.

Q. What would the remainder be?

A. I don't know. I- would not be the reproduction of the distribution system, net construction cost.

COURT: Would it not be the reproduction if there were no pavements in the city?

A If no pavements in the city of Des Moines at all at the 1st of January, that might then represent the reproduction cost of the distribution system.

Q. Now then on this same page 13, of Exhibit "E" you find the cost only now without overhead charges real estate, $215,993. That is correct isn't it?

A. Yes, sir.

Q. Buildings $85,723. That is correct.

A. $85,723 correct yes.

Q. Works equipment, $420,428. That is correct?

A. Yes, sir.

Q. And distribution $1,549,871. That is correct?

A. Those are the net construction costs I have shown in my report.

Q. These figures are correct according to your judgment?

A. Yes, sir.

Q. Now if you add to these figures your item of working capital $150,896 you would get a total of $2,422,911 would you not?

A. I have not added it.

Q. Will you please do so so as to verify my statement
1153 about it?

A. These two figures added make $2,422,911.

Q. Now that represents does it not your estimate of the cost of duplication of this plant today without overhead charges?

A. You can't duplicate without overhead charges,

Q. I know you can't but I am getting at these figures, they would represent the amount you have worked out that it would cost to duplicate this plant less the overhead charges.

A. These figures $2,422,911 are only the total of the sum of the net construction cost plus working capital used in my report.

Q. And less overhead charges?

A. Only what I said.

Q. If you take from that total the $330,558 which you have allowed for paving you would have the sum of $2,092,353, would you not?

A. You would.

Q. As your value when new without paving or overhead charges?

A. Certainly not.

Q. Certainly not. Well why not.

A. You can't value the property of a gas company having the characteristics of the Des Moines Gas Company without including going value because it is an attribute of the physical equipment.

Q. I am not asking you to testify now with respect to going value.

A. You are asking me to state what is the value of the property without going value.

Q. You misunderstood me, I don't blame you much for that, because perhaps I have not used the right term but I think you know

what I am trying to get at. I am taking your own figures just as you gave them in court.

A. I am willing to stand on them.

Q. I may not be entirely clear, in the method I am trying
1154 to work this out, but I am trying to get at — so I will understand it as well as you do if I can. I take your figure of $215,993 for real estate without any of these overhead charges, the buildings $83,723, works equipment, $420,428 the distribution system $1,549,871 and your working capital $15,896, now these figures are correct are they not?

A. They are.

Q. They appear in your report?

A. Yes, sir.

Q. And they represent your value?

A. They do not represent the value.

Q. They represent the reproduction cost, you are playing on the word value.

A. No, not playing on it, it has a direct meaning.

Q. They represent the reproduction cost of these items read to you making a total of $2,422,911. Is that right?

A. The addition of the net construction cost to the working capital used in my report makes a total of $2,442,911.

Q. If you deduct from $2,422,911 the reconstruction cost of paving $330,558, you will have remaining as the reconstruction cost less the pavement $2,092,353.

A. No, sir.

Q. How much would you have left?

A. I would have to figure it out to see. I can't arrive at it from these figures.

Q. Well take $330,558 from $2,422,911 and what would you have?

A. I am not disputing the substraction at all. The figure you have stated is the result of the substraction of $330,558 from the $2,422,911.

Q. What does that represent?

1155 A. I don't know how to express it. Certainly has nothing to do with the present value of the property.

Q. Don't it represent the figures that work out from your report that would represent the reproduction cost less the paving?

A. No, sir.

Q. And these items that I have read to you, real estate, buildings works equipment, distribution and working capital?

A. All right now then, you are specifying the items. I am talking about the plant.

Q. That is your opinion of the right way?

A. That is not the right way.

W. Well take then your way?

A. What is the figure you want arrived at?

Q. I want to arrive at the remainder of these items I have read to you after taking paving out as you have figured it in your report.

A. That is not clear to me.

Q. Give me the figures shown as you work it out in your report of the reproduction cost of this property less paving and overhead charges, what is the amount?

A. I can't give that to you without a lot of calculation because that is a sort of item that is not carried through separately arrived at through taxes during construction and loss of interest during construction, it would have to be separately calculated to get that.

Q. What does $215,993 represent with respect to the real estate?

A. $215,993?

Q. Yes what does that represent?

A. That is net construction cost of real estate.

Q. All right now, we have got net construction cost of real
1156 estate.

Q. Now what does building $85,723, what does that represent?

A. That is the total net construction cost of buildings.

Q. That is net construction cost of buildings, all right that is $85,723. Now the item works equipment $420,428 what does that represent?

A. That is the summary of the net construction cost of works equipment.

Q. Now what does the item distribution, $1,549,871 represent?

A. That is the net construction cost of the items entering into distribution system.

Q. I wish you would put that item down also. The item $150,896 what does that represent?

A. Total working capital.

Q. Now will you please give the Master the sum total of those several items?

A. $2,412,911.

Q. You have made a mistake have you not of $10,000, $2,422,911?

A. $2,412,911, is what I get.

COURT: That would be the new plant throughout?

A. No, sir; that would be only the net construction cost plus working capital.

COURT: That is the new plant.

A. That is only part of the cost of course.

COURT: I am asking if that net construction cost would be a new plant?

A. Oh yes.

Q. Now will you please let me check up the items with you there?

A. $205,933 for real estate.

Q. No, $215,993. Now what is your total?

A. $2,422,911.

1157 Q. Now what does that represent?

A. That represents the total of the net construction cost of physical equipment alone plus working capital.

Q. Now then how much if anything is included in those figures for paving?

A. The sum we had before here.

Q. What was that?

A. $330,558.

Q. Now if you will please, deduct that from the other sum and tell us how much is left?

A. $2,092,353.

Q. Now what do these figures represent?

A. The total net construction cost of physical equipment alone plus working capital less net construction cost of paving alone?

Q. Now if you will turn to your letter to Mr. Haines on the introductory of Exhibit 20 and note down there and give to the Master the total cost new of the plant with all overhead charges and paving and going value?

A. That is you want the total reproduction cost?

Q. Yes, the total reproduction cost including all these items you work into it.

A. You don't mean that to be parallel do you to what you are getting here?

Q. No, just give me the amount there.

A. $3,641,714.

Q. That is your estimate of the reproduction cost with all of these overhead charges, paving and going value included.

A. Yes, sir.

Q. Now will you please deduct your value when new without paving or overhead charges from that item, the $2,092,253 from your—That is no such item———

1158 Q. Well deduct that item?

A. Can't do it, no sense in that.

Q. Deduct it from your total in your introductory letter to Mr. Haines and tell me what you have left?

A. Subtracting from $3,641,714 the sum of $2,092,353 leaves the sum of $1,549,361.

Q. That would represent would it not, that $1,549,461 would represent your estimate of the reproduction cost of this property—leaving out the paving—would represent the reproduction value including paving would it not?

A. No, sir.

Q. What would it represent.

A. I don't know sir. It represents nothing in my opinion.

Q. It don't represent anything.

A. Not in my opinion. It is not a fair method in arriving at anything.

Q. We had an item of $2,092,353 on your paper. Now what did it represent when you had it there?

A. That represents the total of net construction costs of physical equipment alone plus working capital minus net construction cost of paving alone.

Q. Now if you take that sum representing these items from your total what do you have left and what does it represent?

A. I don't know.

Q. Have you figures it to see?

A. I have figured it right here.

Q. What do you have left?

A. I don't know as to what the dollars are, I don't know what they mean. They mean nothing to me.

1159 Q. Well let's see if I can't brighten you up a little on that. How much does your report show you allowed for paving?

A. A net construction cost of $330,558.

Q. Put that down please?

A. I have it.

Q. How much do you allow for going value?

A. $583,000.

Q. How much did you include in these overhead charges?

A. I have not separated them.

Q. I wish you would do so?

A. Let me see if I understand the question.

Q. What I asked you is the amount that you have included into this general sum that is contained in your letter to Mr. Haines in what might be termed intangible values over and above the item of paving which you have already given as $33,558.

A. I understood you asked for the overhead covering loss of interest during construction and taxes during construction.

Q. Here is what I mean exactly, you have already given me the sum of $2,092,353 as the reproduction cost.

A. That is your figure, that is not mine.

Q. I got them from your figures, you figured them out yourself. Now there are three items, paving, and going value, these two you have given me, $583,000 and the paving you have given me. Now I want to know what is the sum total of all of the other items that you have included in this grand total here over and above the $2,092,333, call it overcharges or whatever you please, but what is that total?

A. I don't call it over charges.

Q. Overhead charges.

A. That is what I am working on now.

1160 Q. Do you have to go back through the book to find out?

A. Yes, sir.

Q. The only way you can do it?

A. Yes, sir.

Q. I think we can shorten this up, if you will take $2,092,353 add the paving $330,558 add your going value $583,000 and give us the sum total?

A. $3,005,911.

Q. Now if you will subtract that sum from the grand total which you gave Mr. Haines you will get the item I want which includes everything else which I term overhead charges?

A. You understand I am not telling you what this figure represents.

Q. I want you to answer the questions, I don't care what you tell me so that you tell me the truth.

A. Subtracting from $3,641,714 the sum of $3,005,911, gives you $635,803.

Q. Now then if you will take these three items I started to give you a little while ago, the paving?

A. $330,558.

Q. Now the going value?

A. $583,000.

Q. Now the balance between the grand total, $635,803, add those items together and tell me what you have?

A. I have the sum of $1,549,361.

Q. Now from your report, basing this question wholly on your report, that sum which you have just found, $1,549,361 represents the amount that you have added to the item of reconstruction cost and working capital for paving and these other intangible items like going value and taxes and interest, etc.

1161 A. I don't know that it does.

Q. Will you please ascertain whether it does or not?

A. I have got to continue this calculation if you want to tell me what my figures show. Those are your figures, they are not mine.

Q. These figures are all taken from your report.

A. But they are not construed properly in my opinion. I can't answer it without going over the calculation.

Q. Haven't you just gone through?

A. I don't think your method of calculating is correct. I know one correct way and that is the way I am following here.

Q. There is no doubt about the item $330,558 for paving?

A. If you will tell me the figure you want I will get it for you.

Q. No doubt about that figure?

A. No doubt about the figure $330,558 showing the net construction cost of paving, shown in my report.

Q. No doubt about $583,000 as showing your estimate of going value is there?

A. No, sir.

Q. Now is there any doubt about this $635,803 representing everything else?

A. That is the figure which you gave me and in which I have no confidence. I want to calculate it in my own way. I don't know how you figured it.

Q. How long will it take you to verify that?

A. I don't know. I will do it as quickly as I can.

Q. What do you mean by that, do it now or do it tonight or do it some other time.

A. Well I will do it as soon as I conveniently can or make an effort to.

1162 Q. I wish you would just give the Master and I know you can give it in five minutes if you wish, the amount that you include in your $3,641,714 over and above the amount that you set over as reconstruction cost of the physical property?

A. I have not worked that figure out separately and it can't be obtained from my report or my data except on this calculation on which I am engaged.

Q. In other words no one can work out from your report that item except yourself, is that it?

A. I didn't say that. I say except by going through the calculation like this.

Q. Suppose the Master desires to know that, how is he going to find it out?

A. He can make the same kind of calculation I am making here.
Q. What kind of a calculation are you making?
A. You may follow it if you wish?
Q. Do you use these total figures?
A. Use nothing but figures out of the report, the figure asked for does not show in the report as a separate figure and you must arrive at it from details.
Q. Taking $3,641,714, that is the grand total?
A. Yes, sir.
Q. Now take out the reproduction cost of the physical property, $2,092,353 and what have you got left? Don't that give you the sum of those three items?
A. I don't know, I don't see that figure.
Q. Well just figure it out there and see.
A. $1,549,361.

1163 Q. The sum of these three items, the paving, the going value and this $635,803 make the total of $1,549,361. Now does not that represent the difference in your figures as shown in your report between the grand total of $3,641,714 and the $2,092,353?

A. I will have to complete my calculation before I can answer.
Q. You can't even accede to that?
A. No, sir.
Q. I would like to have you furnish for the Master and the rest of us at the coming of court tomorrow morning in separate items the amount that you have allowed and have worked out in your report in value or in cost over and above the amount that you have figured for the reproduction cost of the actual physical property.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

1164 Friday Afternoon Session.

JULY 28, 1911—at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of Complainant resumed as follows:

HENRY I. LEA, re-called for further cross examination, examined by Mr. Byers, testified as follows:

Q. One of the things I asked you for last night was to figure out for us your prospective business on the basis of ninety cent gas, did you do that?
A. No, sir.
Q. Why didn't you?
A. I didn't get time.
Q. Who paid you for your services in the Beatrice case?
A. I was paid through the council committee by the Gas Company.
Q. How much?
A. I have forgotten.

Q. The name of that company was the Gage County Gas Company?

A. I believe so.

Q. The Gas Company offered to pay you three hundred dollars?

A. Through the committee, yes.

Q. The money was from the Gas Company?

A. I suppose so; I don't know whether it was money that was due the city or not; but I was engaged by the council and through the council was paid by the Gas Company, as I understood it.

Q. You filed your report there about March 1st of this year?

A. I don't remember.

Q. You made it at the same time you made this report?

A. It was since I came here in January.

Q. You made it up at the same time you made up this report. worked on it at the same time?

1165 A. No, not at the same time.

Q. Then during the same period?

A. Yes.

Q. It was done in your office?

A. Yes, sir.

Q. Just as you may have been doing other jobs at the time?

A. Since I first came here.

Q. There was nothing paid by the city of Beatrice?

A. I understood the city was paying me.

Q. How did you understand that?

A. By being retained by them.

Q. How did you assume that when the Gas Company paid you?

A. When the Gas Company sent the money I assumed it was money owing the city.

Q. Have you got the Gas Company's letter in which they sent you the money?

A. No.

Q. What did you do with it?

A. It is in my office, if they sent a letter; I don't know that they did.

Q. They didn't pay you out there?

A. I have forgotten.

Q. Have you got a copy of your Beatrice report with you?

A. No.

Q. You have a copy in Chicago?

A. Yes.

Q. Do you remember the name of the city official you claim you dealt with out there?

A. No.

1166 Q. Do you have that in your office?

A. Yes.

Q. Now, Mr. Lea, yesterday we were dealing to some extent with your so-called value. What year did you begin in your computation with your going plant to get the basis for that end of your compitation as to going value?

Q. What year did I begin with the going plant—the date of the inventory is the first of January.

Q. I mean of the life and history of the plant, what year in the history of the plant did you take as the beginning from which you worked out this $600,000 going value?

Mr. GUERNSEY: It is $583,000.

A. The going value of the existing plant was calculated as the first of January, 1911.

Q. You don't understand my question. You don't mean $583,000 going value was all at once put into your plant on the first day of January?

A. I said $583,000 was in my opinion——

Last question repeated.

A. You mean the period covering the comparisons of the two plants?

Q. Yes, sir.

A. Well there was a period of seven years required.

Q. I am not talking about the seven years. I suppose you want us to understand that there was something, some service or expenditure represented by this $583,000?

A. My report shows clearly what is represented by that.

Q. What is represented by that?

A. If you will look at the report and follow me I can tell you.

Q. You can tell me in a general way?

A. I can't tell you as completely as I can by reading the report.

Q. Well, go ahead and read the report.

1167 Q. You want me to read all of the report?

Q. I don't think you understand the question, Mr. Lea, because I don't think it is necessary to read your report to answer what period was any part of this going value first earned or attached to this plant.

A. You are trying to ask me when was this going value accumulated?

Q. Yes.

A. It began when it began business.

Q. What year did you start with as the beginning of that business, to work it up?

A. The original company I think was started in 1864.

Q. What year did you begin with, the first figures you used?

A. You are not asking the question so that it can be answered by yes or no, certainly.

Q. No certainly that couldn't be answered by yes or no.

A. I am afraid you don't understand the calculation.

Q. What period did you begin to take this going concern—you accepted the situation up to some particular point?

A. Yes, sir.

Q. What was that point?

A. I came on this job to make the appraisal as of the first of

January, 1911. At that time the Des Moines Gas Company had acquired a certain going value; what that was I didn't know at that time. To find out what that going value might fairly be, I had to calculate what the other company would have to spend to equal the going company, what it would cost to duplicate the property and business of the going plant.

Q. When was the Des Moines Gas Company organized?

A. I don't know those dates.

1168 Q. I mean the present company?

A. I don't know.

Q. Didn't you inquire about that?

A. I heard some dates given, but they were of no interest to me; I didn't try to make note of it; the corporate title of the property has no interest to me at all.

Q. It didn't make any difference to you even in a rate case?

A. Doesn't affect rates.

Q. The organization of the company don't affect the rate either?

A. No, sir.

Q. If it should turn out to be true that this company was organized in 1906 and commenced to do business for the first time in Des Moines in the year 1906, would that make any difference?

A. Not the least.

Q. That wouldn't make a bit of difference with the question of going value?

A. No, sir.

Q. Now, if that be true, from your standpoint, on your theory, if it should so happen that the Des Moines Gas Company took over this entire plant in 1906 at less than the value of the physical property as fixed by you, and less than the reconstruction cost of it with the proper reduction, and then commenced its present business in the year 1906, would that make any difference to you?

A. No, sir; it wouldn't make any difference to me.

Q. Take the case we are trying and not a fictitious, hypothetical one, based purely upon theory, if it should turn out that the Des Moines Gas Company, when it was organized in 1906, took over the present gas plant at a valuation say of $1,750,000, and we will assume now for the purpose of this question, that according to your judgment and your valuation the physical, actual physical property which includes everything as you figured out the reproduction cost, leaving out all these items of going value and promotion expenses, and so on, just actual reconstruction cost of the physical property, and that amounts now to the figure you have there—will you give it to me again?

1169

A. What figure?

Q. The actual reconstruction cost of the physical property, the net construction cost?

A. The net construction cost of real estate plus buildings, works, equipment, plus distribution system I find to be $2,272,015.

Q. Now, in that item $2,272,015 there is no item of working capital is there?

A. No.

Q. And that item you figured at $150,896.00?

A. Yes.

Q. And the sum of these two items would be, as I make it, $2,422,911—is that right?

A. I haven't made those figures. I don't know.

Q. I wish you would; I want you to agree to those as we go along.

A. Are you trying to arrive at the total net construction plus working capital?

Q. Yes, sir.

A. Then you don't want to use the figure you have; you want to take $142,000.

Q. I don't care about that little addition—let it stand at $150,000 for the purpose of my question.

A. The total is $2,272,015.

Q. Now that would represent the net reproduction cost of the present plant on the first day of January, 1911, with $150,896. capital added?

1170 A. It would represent in addition $150,896 for working capital, to the total net construction cost to the physical equipment alone.

Q. The addition is in my saying reproduction instead of net construction?

A. Yes, sir.

Q. We call it net construction then; that in your judgment is what the physical equipment, the actual physical property, with this item of working capital added was fairly worth, leaving out these other factors, on the first of January?

A. No, sir, not on a net construction basis.

Q. Well, what was it; I don't want any of those additions; what I want is just the figures, the amount; I am trying to verify what you have given as the net construction cost of the first of January 1911.

A. You will get that if you stick to the books. According to my report the total net construction cost, acquisition of physical equipment alone, plus a corresponding allowance for working capital is $2,414,415.

Q. What did you add there?

A. I didn't add there.

Q. What did you take out of the $2,422,911.

A. I am giving you the net construction cost.

Q. What did you take out on those figures?

A. I say, instead of $150,000 $142,000.

Q. I told you that I wanted to use $150,000; you have taken out $6,000. the difference in working capital.

A. I have omitted lost interest during construction and taxes during construction on working capital.

Q. So you make then the amount $2,414,015.

1171 A. Yes, sir.

Q. Does that sum represent what in your judgment was the fair and reasonable value or reproduction cost whichever way you

want it of the actual physical property of this company on the first of January, 1911.

A. No, sir.

Q. What does it represent?

A. It represents only the total net construction cost of the physical equipment alone, plus the net construction cost of working capital.

Q. All right, have it that way. Now, then, assuming that that is the cost—you discriminate between cost and value?

A. Very distinctly.

Q. Assuming that was the actual net construction cost to this Des Moines Gas Company, what do you say the company has ever given to the community or anybody else, for this $583,000 of going value, if this statement now is correct, that the Des Moines Gas Company took over this property in 1906 for less money than what you have worked out here in reaching the net construction cost and the total net cost to them for the property, the total net construction cost did not exceed $2,414,015; you have worked out, what would this company give to this community or to its consumers in return for this $583,000 of going value?

A. What did it give?

Q. What would it give?

A. Haven't the community had a supply of gas all this time, satisfactory service?

Q. Has not the Des Moines Gas Company been paid for it?

A. I presume in part at least.

Q. What particular service would this company have given to this community for this extra $583,000 if my statement as
1172 to those figures is true?

A. It has performed all the work and made all the investment necessary in building up this business which cost money.

Q. What was it it has not been repaid for, what particular work?

A. I didn't say it had done the work it had not been repaid for.

Q. Now, Mr. Lea, if the Master should finally decide, the court should finally decide to accept your figures of going value, of $583,000 and add them to the construction cost, then it is your understanding, isn't it, that the company will be permitted to earn a rate or make a charge based upon that valuation, with the $583,000 added to it?

A. It is my understanding the company should be allowed a rate——

The MASTER: Please answer that question.

A. I can't answer it.

Mr. GUERNSEY: You mean you can't answer it yes or no?

A. I can't answer it yes or no.

Q. I will put the question in another way: you have included in your figures $583,000 as the so-called going value of this plant, and in your final summing up you add those figures $583,000 to the reproduction cost of this property, do you not?

A. Certainly, as a part of the reproduction cost of the physical equipment.

Q. And you understand when you do that that item of $583,000 is to be considered in fixing what would be a reasonable charge for furnishing gas in the city of Des Moines?

A. Yes, sir.

Q. And you made the figures with that in your mind?

A. Not with the fixing of rates in my mind.

Q. You knew it was a rate case?

A. I made it solely with the view of determining the
1173 present value of the property.

Q. You knew it was a rate case?

A. Yes, but that had no bearing on my valuation.

Q. You knew these figures you were furnishing to Mr. Haines were to be used for the purpose of convincing the Master that the rate fixed by the city in this ordinance was too low?

A. I did not know the rate was too low.

Question repeated.

A. No, sir, I did not.

Q. Now, then I would like to have you tell the Master just in your own way, just what service this Des Moines Gas Company, as it is now organized, has given to this community in return for the privilege of basing at least a part of the rate that they shall be allowed to charge for gas upon this $583,000, for all time to come; what have they given to this community for that in your judgment?

A. They have gone through a good many periods of uncertainty; they have sustained material losses in real cash; they have risked their investment in a business which is certainly not guaranteed by the community in the slightest degree; they have been under no protection whatever as to competing franchises, nor as to adverse action of the city council, nor as to competition from other sources; they have had no assurance as to the growth of the city; they have had net returns which certainly have not been excessive; they have maintained a satisfactory supply of gas and good service at all times.

Q. Anything else?

A. There doubtless are other things.

Q. It is your idea now that all these things enter into this going value?

1174 A. I didn't say that.

Q. What are you giving these things for?

A. They don't enter into my calculation of going value; I have shown you that.

Q. Now, this $583,000, what has this company given the community for it?

Mr. GUERNSEY: This question is objected to as argumentative, irrelevant and imaterial, because it is not contended here that the community has given the company or the company given the community anything on account of any property which the company owns. This question asks the witness what the company has given to the community on account of the element of the value of the property in the company's plant. The company did not buy the

plant from the community and did not give it anything for it; it is a mere matter of argument.

The MASTER: Let him answer the question.

A. This going value is not predicated on what the company has given the city nor what the city has given the company.

The MASTER: That don't answer the question.

A. I can't answer such a question.

Q. Let us see if you can answer it this way: You have already told me that you understand this rate controversy, the question to be determined here is the question of a reasonable rate to be charged this community for furnishing gas?

A. Yes.

Q. You also told me that that rate must be based to some extent at least upon the fair value of the property of the company?

A. Yes, sir, certainly.

Q. So that this so-called going value now is to be a part
1175 and is to — considered a part, on your theory, of the value of the property upon which the rate is to be fixed?

A. Necessarily so.

Q. You understand too, do you not, that that rate should be based wholly on the actual value of the property used in the business, don't you?

A. It should be based solely on the actual present value of the property used and useful.

Q. Now, then, if that be true, what I want to know from you, is just where this company is using in the business of making gas here now, and furnishing gas to the people, this item of $583,000 that you allow for going value?

A. I can't answer that without an argument.

Q. I wish you would tell us then—we will have to go back to your original proposition, it seems to be a little cloudy to me anyway—I wish you would tell us again in as brief a time as you can just how you arrived at your going value?

A. By finding out what a willing buyer would pay for that going value.

Q. How did you find that out?

A. By considering each of the items that make up the going value; the time required to reproduce the plant of the same kind of capacity in the same kind of a community; the expense required for the physical equipment, the purpose of the individual portions making up the total investment, the building up the business.

Q. Anything else?

A. That is enough.

Q. What part of that has this Des Moines Gas Company performed here in this community?

A. I can't answer that without argument.

1176 Q. Can you answer it at all?

A. Yes, sir.

Q. What have they done to earn this value?

A. I have answered that.

The MASTER: Suppose this plant, this new plant you are speaking

of was reproduced instantly on the first day of January, and the whole business had been developed, would that make any difference in your estimate of going value?

A. Oh, yes, that would reduce the going value, because the time required for building the plant would have been wiped out and you have only left the period required to develop the business.

Q. Then if it turns out that the correct theory is that the reproduction shall be instantly, then that would make a difference in the going value?

A. You mean the reproduction of the manufacturing plant on street mains and services but not the business.

Q. Yes, sir.

A. Such an assumption would reduce the going value. The fundamental method of calculating is that everything you assume must be humanely possible.

The MASTER: Suppose the correct theory of the law is that it shall be deemed reproduced instantly?

A. If the law were to hold that it would certainly reduce the going value.

Q. Have you given me every element you considered in arriving at the going value?

A. No, sir.

Q. What other element?

A. I haven't had time to think of them; I can't tell you off-
1177 hand; the calculation is before you and you can see it there.

Q. You don't consider anything except what appears in there?

A. All I consider are in there.

Q. I wish you would examine what the reporter has marked Exhibit 6 and state whether that is a copy of your Beatrice report?

A. I don't know, sir.

Q. Look it over and see?

A. I can't tell by looking it over. This is on the paper of an attorney and is not signed by me. I know nothing whatever about it.

Q. You can't tell whether it is your report?

A. I certainly cannot.

Q. Or whether it is one you have made in your office?

A. I don't know anything about the original of that copy.

Q. You don't know anything about it?

A. No, sir.

Q. Will you say to the Master that is not a copy?

A. I will say that is not a copy made under any authority of mine; nor have I ever seen this copy nor have I ever seen such a copy in existence. I will not say it is a copy of my report; it may be.

Q. You won't even tell us whether those figures are copies of figures you made?

A. Do you suppose I try to keep them in my mind?

Q. How did you work out the going value in Beatrice, Nebraska?

A. I would have to see my own report to tell you.

Q. Your report was filed out there, was it not, in February, 1911?

A. I don't know.

Q. And you say now you can't remember what plan or method you worked out?

1178 A. I wouldn't pretend to.

Q. It wasn't the same method you worked out here?

A. It was not; I did not know this method at that time.

Q. When did you first learn this method?

A. Early this spring, in this year, we discovered that this method had been used by water works companies in several cases.

Q. How did you discover that?

A. Through the fact that John W. Alvord of Chicago, consulting hydraulic engineer, had been using this system and used it in the Des Moines Water case.

Q. This was all worked out after you came to Des Moines?

A. No, sir; this has been in use for twelve years.

Q. I mean as far as you are concerned?

A. I never used this method of calculating before the spring of this year; I have determined going value before, but always by methods much more open to argument than this.

Q. About what time was it in the spring you found out about this?

A. I don't know.

Q. Can't you give us any idea except that it was some time in the spring; was it before June?

A. I don't remember.

Q. Before July?

A. I don't remember; it was before I made this calculation; that is all I can tell you.

Q. Are you acquainted with Mr. E. O. Kretzinger of Beatrice, Nebraska?

A. I don't remember the name.

Q. Is he the man you dealt with out there?

A. I don't remember.

Q. Do you remember the name of the manager of the gas company?

A. Yes, Thomas Rice.

1179 Q. But you can't remember any member of the committee of the city?

A. No, sir.

Q. I want to put another question to you, Mr. Lea, a hypothetical question in a sense—suppose that the Des Moines Gas Company, the complainant here in this case, had bought and paid for this plant, complete as it was in all its parts in 1906, and paid one million dollars cash, and then they had added in the five years since, five and a fraction years, the extensions and services and additions to the property generally that their books show has been added as a matter of fact, and the reproduction or construction cost of all that was added, I mean the net construction cost without any of those other matters, like going value, up to two million dollars, on the first day of last January, now would you still say that you would work out, or it would be fair to work out this going value in just the way you have

and add the $583,000 to that two million dollars, for the purpose now of arriving at a reasonable and just rate for gas in Des Moines?

A. I don't know that $583,000 would be the going value under the conditions you name; I couldn't tell you without working it out.

Q. How do the conditions I name affect it?

A. You are using different amounts.

Q. I have assumed now that the property had just the position of the property, just as it has been, the same business, the same town, everything in that respect the same, and the Des Moines Gas Company buys the business in 1906 for a million dollars cash; that is all they had to pay. Now since 1906 they have added just the equipment that their books show and which this onvoice shows,
1180 and we will say for the purpose now of the illustration—I simply want to test your notion or theory about it—that the construction cost, reconstruction cost would be just as you had figured it out, but for the purpose of the illustration we will say it was two million dollars, the company would have to pay for the property in 1906 and what they paid for additions and extensions since, and all of that amounted to exactly two million dollars; now would you say it would be fair to add a going value of $583,000 to that for the purpose of fixing rates in this community?

A. Are you assuming on the first of January, the property and business of the company and the characteristics of the city were as they were at that time?

Q. Exactly.

A. Then the same amount of going value would certainly be allowed in my report.

Q. So that then it is your notion and this would be the result of your theory, would it not, that if the condition existed just as I have supposed it and you add $583,000 for going value, then this community would be paying a return upon that $583,000 in the rates that were charged for gas for all time to come?

A. Not for all time to come, they would until further adjustments might be made.

Q. As long as there were no adjustments made that rate would have to be carried on?

A. Yes.

Q. So that I was right when I say they would be paying a rate upon this $583,000 for all future time?

A. They should pay a fair rate on the actual value of the property used and useful.

1181 Q. Even though this intangible thing of going value——

A. It is not intangible.

Q. Even though this going value was an item for which this company had never contributed a single dollar or single day's time to anybody in accumulating or creating it?

A. You are assuming a physically impossible condition. I have no answer to make to it beyond that.

Q. It would be physically impossible?

A. To reproduce the business without the expenditure of time and money.

Q. Your theory is, it don't make any difference what the property of the Gas Company, you would add it?

A. I don't care what it cost, if it cost money to develop the business and cost money to develop the plant, or time, then these elements would be considered.

Q. So far as your going value is concerned, you don't care anything about what the complainant, the Des Moines Gas Company invested in this property or what he paid for it?

A. No.

Q. You get at this going value and credit it to them just the same?

A. I arrive at the same reproduction of the present values of this property regardless of what the company paid for it.

The MASTER: Turn to the letter there of June 26, 1911; you figure the buildings $82,445.

A. Yes, sir.

The MASTER: And the works equipment is what?

A. $384,700.

Q. Now, omitting the real estate, is that what you estimate the present value of the equipments, including the distribution system works and equipment and the building of this plant?

A. No.

1182 The MASTER: I am talking about the physical equipment.

A. But the going value is an attribute of physical equipment.

The MASTER: I am not talking about that now. What I want to know is what is the actual present value of the physical equipment without considering the going value.

A. Do you went the total of those three items?

The MASTER: Yes, minus real estate.

A. $2,200,131.

The MASTER: You have it the same as I have except the going value there is a difference of one dollar.

A. Yes, I dropped it there.

The MASTER: Then you do not take into consideration in this the organization and legal expenses, real estate or going value?

A. No.

Mr. BYERS: I have been trying to get this for a day and a half, except that I was dealing with the reproduction cost. It simply shows that the witness will respond to the Master when he won't to me.

Q. Now, Mr. Lea, I think I have your notion of going value, and now just a little while on pavement. That $300,000 is that included in this $2,200,000?

A. Is that the total paving?

Q. Yes.

A. That is a part of the distribution system, present value.

Q. Now, you worked that out and included it in here, understanding that it also is to be considered as a part of the value of this property for rate making purposes?

A. I put it in there with the understanding it was an
1183 essential part of the reproduction value of the property for rate making purposes or any other purpose.

Q. What did you say was the life of the ordinary gas pipe?

A. I didn't say.

Q. Will you say?

A. If you name the size I will tell you.

Q. Well, beginning down with the small sizes, say 4 inch or 6 inch?

A. Cast iron?

Q. Yes.

A. Four inch cast iron I estimate the life fifty years.

Q. Six inch?

A. Seventy-five years.

Q. Eight inch?

A. Seventy-five years.

Q. Ten inch?

A. Seventy-five years.

Q. Twelve inch?

A. Seventy-five years.

Q. Sixteen inch?

A. Seventy-five years.

Q. Fourteen inch?

A. Seventy-five years.

Q. Twenty inch?

A. Seventy-five years.

Q. Twenty-four inch?

A. Seventy-five years.

Q. Now, what is the life of the ordinary asphalt pavement?

A. I don't know.

Q. What is the life of the kind of pavement you figured?

A. I didn't care what the life of the pavement was.

1184 The MASTER: If you know, say so.

A. I don't know.

Q. You didn't make any inquiry about that?

A. No.

Q. If it should turn out then, Mr. Lea, that upon these streets where you have figured out this $300,000—just assume for the purpose of this question one of those streets is Walnut, from the river on the east to say Thirteenth on the west, now if it should turn out that about the time that this gas — compelled to relay its pipes on Walnut street, and the pavement is ready to be relaid and the city is tearing it up for the purpose of relaying, and the Gas Company lays its pipe during the time that work is being done without having to tear up or replace the pavement, this complainant company then would have added to the value of its property and upon which the people of this community would be paying for that much pavement for which this company never would have to pay out a cent?

A. No, sir; if the truth were as you stated, there would be no allowance in the reproduction value. It is physically impossible to

relay mains as required if you only relay them when the streets happen to be torn open for repavement.

Q. If it should turn out that was done, as I stated, and the company had the advantage of laying the pipe during the time the city was relaying the pavement, then under your method of figuring this community would be paying upon a valuation enlarged by the amount you figured?

A. It would not. The reproduction value would be correspondingly reduced, the present value would be.

Q. How would the people get it back?

A. They would get it back right there in the reproduction cost.

1185 Q. Get what?

A. If you can show that it is going to be so, I will willingly make a reduction.

Q. But suppose it turned out to be the case, all the time between now and then the people have been paying upon this added value; how are they going to get that back?

A. If that were true, I would reduce my value.

Q. That is not a fair answer. I am assuming that Walnut street between the points I have stated, one of the streets now included in your $330,000, I am assuming that when the pipe that is now laid there must be relaid, the streets are torn up and the Gas Company—say it is twenty-five years from now—and the Gas Company lays its pipe while the pavement is torn up, under your theory and figures, if they are adopted by the Master and the rate is fixed on them with this pavement added, the people of this community will have been paying upon that added value for a full twenty-five years?

A. You are assuming a condition you are willing to say is existing?

Q. If it does exist?

A. If I have assumed this street is not to be open at the time of relaying this particular main, and have therefore included paving over that main as a part of the reproduction cost, and then when the time comes for the actual relaying, and the expense of tearing up and replacing the pavement is not borne by the company, then obviously my rate would be too high to that extent.

Q. Now, just one more question, and then I will pass that. Assuming the facts as I did in the former question, and it was twenty-five years hence, and the Master had accepted your theory and your figures, then the people of this community would have been paying for twenty-five years to this Gas Company upon that added

1186 value?

A. On that insignificant fraction of the value of the pavement.

Q. On that much of it anyway?

A. Yes.

Q. How do they get that back?

A. It would be so small, you couldn't find it in a cent.

Q. All Walnut from the river to Thirteenth street would be so small that you couldn't find it in a cent?

A. Certainly; figure it out and see how it would affect the price of gas.

The MASTER: You figure two per cent under this ordinance?

A. Yes.

The MASTER: You figure two per cent and the other taxes besides?

A. Yes, two per cent is on the revenue from the sales of gas, and the other is county, state and school. It is shown in the calculation.

Q. Now, Mr. Lea, you have made no deduction of any kind in your figures or in your report for any such contingency as I suggest with respect to the pavement, have you?

A. No, sir; because I don't expect it to occur.

Q. But you did add eight per cent to this enormous total value of this property for the company for any little omissions or contingencies that might be found?

A. Yes, sir.

Q. What amount did you figure that eight per cent on, what total?

A. It wasn't figured on real estate at all.

Q. Just tell me what total it was figured on?

A. I don't know the total amount; I could get it. Wouldn't you rather have the total of engineering and which includes the eight per cent, or do you want the eight per cent separately.

Q. Well, take the fifteen per cent?

1187 A. Well fifteen per cent on the entire plant, I used it on buildings, works equipment and distribution system only, on real estate $5,000 and total for engineering, casualty liability, etc., is $313,411.

Q. I want to get the figures you multiply by fifteen?

A. I haven't the total; I have the result which is $313,411.

Q. Now, if you take $5,000 out of that it will give what you allowed on everything except real estate?

A. Yes, sir; buildings, works, equipment and distribution system.

The MASTER: Right there, would it apply to the present value?

A. It would not because the reproduction cost has been depreciated on everything except real estate. I have that worked out I think in the form you would want it here.

The MASTER: If this eight per cent should be eliminated then I would have to go over all these items?

A. Yes, then you would have to take it out of such items as the eight per cent has entered, buildings, works, equipment and distribution system and deduct it from the total of each of those heads.

Q. You say the eight per cent is figured in what?

A. As a part of the fifteen, which is added to the net construction cost of the buildings, works, equipment and distribution system.

The MASTER: What effect does that have upon the present value?

A. That increases the present value, because it of course brings your reproduction cost up, but this reproduction cost is depreciated because of the present condition of the property. To bring you back to the present value. Here is the difference between the total of the amounts included in my report; engineering, casualty liability, omis-

sions, contingencies, tax during construction, loss of interest
1188 —there is a total of $582,699 in the reproduction cost. In the present value there is a corresponding allowance of $507,-141. Of the amount I have shown as the present value of the property $507,141 covers the items of engineering, casualty liability, omissions, contingencies, tax during construction, loss of interest during construction on the assumption that none of the going value has been credited to the physical equipment.

The MASTER: What is the present value of that?

A. That is the present value. The reproduction value of that corresponding item is $582,699. In other words, there is something over $75,000 less in the present value than in the reproduction cost for these overhead charges I have named.

The MASTER: I don't want to be understood as indicating any view on that eight per cent, the two per cent and five per cent that he has figured to get the exact amount of net construction cost, then he adds fifteen per cent to get the reproduction cost; that includes five per cent engineering, two per cent casualty liability, eight per cent for things forgotten. I recognize the fact there may be some dispute over these propositions and I want to get the figures, if I should hold one way or the other, I would know something about these figures.

The WITNESS: To these totals net construction cost, plus fifteen per cent, are added taxes during construction and loss of interest during construction in arriving at the total reproduction cost. You take out the item of taxes during construction and add it to these other items you have $72,759, my allowance for taxes during construction.

Q. That is new, you mean?

1189 A. That is the whole amount of taxes during construction on the reproduction of the plant.

Q. Of the new plant?

A. Yes.

Q. What was the amount of interest?

A. $196,529.

Q. Was that depreciated any?

A. No, that is on the reproduction. Taking engineering which amounts to $313,411. The tax during construction of $72,759.; and the lost interest dueing construction, of $196,529. and you have a total of $582,699. which is included in my total figures of the reproduction cost shown in the letter to Mr. Haines. Now then the amount covered in the allowance for present value, of course is less because overhead charged depreciate as the buildings and equipments depreciate; depreciating each in these amounts by the composite per cent condition instead of $582,699. or $507,144 which is the corresponding overhead charge included in my present value make a figure of $3,261,705.

Q. Now, while you are right there, will you give us the figures please, the full amount of the three items, first the amount that was added for paving?

A. $330,558.

Q. And your going value?

A. $583,000.

Q. Now, then what is the sum total of these so-called charges?

A. The overhead charges I have given you on the reproduction basis, $582,699. or $507,144. on the present value basis.

Q. On the reproduction basis it is $582,699.

A. Yes.

1190 Q. Organization and legal expenses was what?

A. The net construction cost $62,000.

Q. Even?

A. Yes. The corresponding amount for working capital is $142,000.

The MASTER: I don't think his calculations are correct. I wish you would go over them again. I think when you come to figure it down you will find they are not.

Q. Now, I have those items, paving $330,558.

A. That is the net construction cost.

Q. Going value $583,000.

A. That is the reproduction cost.

Q. Taxes, interest and overhead charges $582,699.

A. Yes.

The MASTER: Here is what I am interested in. To each of the items you add fifteen per cent?

A. To each of the items, buildings, machinery and distribution.

The MASTER: Now, then you calculate on that the present value?

A. The present condition and then the present value.

The MASTER: You can't get at how much that is or reduce it to an analysis unless you go to the items?

A. No; unless you go to the items to which it was applied.

Q. Now, I had $582,699 for taxes, interest and overhead charges.

A. That is the total of the allowance on reproduction cost basis for engineering, casualty liability, omissions, contingencies, taxes during construction and lost interest during construction.

Q. Then I have an item here of $62,000. That is for promotion and legal expenses, and so on?

A. That is parallel of what we call the net construction cost of the balance of the stuff. It is the cost of legal organization,

1191 expenses without any addition for engineering or taxes or lost interest.

Q. What is the sum total of these four items, leaving out the capital—the paving, the going value, overhead charges and the $62,000 organization and legal expenses?

A. The total net construction cost included for paving, plus the corresponding amount for organization and legal expenses, plus the corresponding amount for working capital, plus the total amounts allowed for engineering, casualty liability, omissions, contingencies, tax during construction and lost interest during construction is $1,117,257.

Q. Now give me those items, first the net construction cost of paving?

A. $330,558. Organization and legal expenses $62,000; work-

ing capital equipment $142,000; the balance of these items overhead charges $582,699. that makes a total of $1,117,257.

The MASTER: How do you make that $142,000 instead of $150,000?

A. If you refer to the second page B you will find I think $142,000 as the net construction, and the tax appears as overhead and the loss of interest appears as overhead.

Q. Now, the item of paving is $330,558.; the going value $583,000; the overhead $582,699.; organization and legal $62,000. What is the total of those items?

A. The total of the net construction cost for paving $330,558, plus going value $583,000. plus overhead as previously defined $582,699. plus organization and legal expenses $62,000, equals $1,558,257.

Q. Now, Mr. Lea, please state what that total represents as a total in the record?

1192 A. I don't know.

Q. If you take that total now and subtract that from your total reproduction cost, what have you then?

A. Substracting the sum of $1,558,257. from the sum of $3,641,714 will leave the sum of $2,083,457.

Q. Will you tell the Master what those figures represent?

A. I don't know what they represent.

Q. You don't know?

A. No, sir, I can't give that amount a name.

Q. How would it do to say that represented the net construction cost less these four items you just footed up?

A. That would be incorrect.

Q. In what respect?

A. Suppose you try it, and see if that is true. Subtract those four amounts from the net construction.

Q. The reproduction cost I mean?

A. Subtracting from the total reproduction cost the total of the four items leaves $2,083,457.

Q. Then that $2,083,457. represents your judgment and the valuations as made by you in your report of the reproduction cost of the property of this plant, outside from those four items?

A. That figure is not my figure and doesn't mean anything to me.

Q. Don't mean anything to you?

A. No.

Q. Is my statement correct?

A. It is not.

Q. What is the matter with it?

A. You are making me say something I am not saying.

Q. You are not willing to say what $2,083,457 represents worked out from the report that you furnished us?

1193 A. I am not willing to say what you mean by such a combination of figures that you make when I don't see that they mean anything.

Q. Is there anything wrong with the four items I gave you?

A. They are correct as items.

Q. What I want to arrive at is the amount or value or cost or

whatever you may term it that you arrived at for the physical property of this company, free from any of these four items?

A. I cannot arrive at the reproduction cost of the physical equipment in this property without considering those others.

Q. Well, give us the net construction cost then?

A. Net construction cost of what?

Q. Of the physical equipment of this property without any of these figures in them.

A. The total net construction cost of the physical equipment is shown in Exhibit E to be $2,272,015.

Q. Now then give me the reproduction cost as you worked it out, give it to the Master and state it in the record less these items.

A. The sum of the four items I gave you is $1,558,557. I can only speak of those amounts as figures; they represent nothing.

Question repeated.

A. You have no reproduction cost until you have allowed these other items.

Mr. BYERS: I do not like to appeal to the court with respect to a witness, especially not as intelligent a man as this is, but I think we have reached about the limit. I have tried to get along with this man for a day and a half. I don't want anything from him that he cannot figure out from his report. Here is a report that he has offered and he has a theory that he has worked out. It is
1194 entirely proper that we ought to fully understand it. It seems to me the witness is not trying to either assist the Master or counsel.

The MASTER: That is the only trouble with the witness; he is all the time trying to sustain his theory instead of answering the question. I say again, answer his question; if you can not answer the question, say so. Don't enter into any argument.

Q. Now, I will put that question again. I wish you would give to the Master the difference between the total, as you have used it in your letter to Mr. Haines, of the reproduction cost of this plant, and the sum total of the four items which you have figured up there to be $1,558,257?

A. The difference between the sum of $3,641,714, which I give as the total reproduction cost of this property, and the total of the amounts comprising the net construction cost of paving, plus going value, plus the amount corresponding of the net construction cost of organization and legal expenses, plus the amount called overhead, which covers engineering, casualty liability, omissions, contingencies, taxes during construction, loss of interest during construction, is $2,083,457.

Q. Now the amount of $3,641,714, is the amount that you give in your letter to Mr. Haines as the reproduction cost?

A. It is.

Q. You gave us the taxes Mr. Lea as $72,759. What would it be depreciated if you worked it out that way?

A. I can't tell you off-hand.

Q. Can you give us the lost interest depreciated off-hand?

A. Not off-hand.

Q. How long would it take you?

1195 A. I don't know.

Q. Can you do it in time for this afternoon?

A. I can't do it during lunch hour.

Q. How about those other figures I asked you for last night, on the prospective growth of business under the ninety cent rate?

A. I haven't them.

Q. When will you get them?

A. I can't say when they will be done.

Q. Have you worked at them?

A. I am not yet working on them.

Q. I wish you would remember these two items of taxes and the item of lost interest and work them out for us so that we can have them some time during the hearing?

A. You want to show the amounts included for taxes during construction and lost interest during construction, as they might be properly extracted from the present value shown in the letter to Mr. Haines.

Q. Yes, sir. Now, Mr. Lea, in attaching your values to the separate items in the invoice Exhibit 15, you, as I understood you yesterday, took the figures just as Mr. Broadnax and his men had made them, except in a very few instances where you either ignored them or found some little errors?

A. The figures in the inventory you are speaking of—perhaps I have made you misunderstand what I emeant when I said there were figures in that inventory which I have not accepted. There were figures as to the quantity of paving necessary to take up; I have my own ideas about that and took my figures.

Q. Was yours larger than theirs?

A. I did not make any comparison between the results. I noticed they had some amounts there, which didn't mean anything to me.

1196 Q. You didn't agree with whoever worked out the inventory?

A. I didn't see any reason for taking their practice, I had my own practice for that.

Q. I notice in your report for instance in some places where you are dealing with the laying of brick you credit $17 a thousand and in other places $16 a thousand and one or two places maybe as low as $15. Take your $17 item, what does that cover?

A. That covers the labor and material entering into the laying of brick.

Q. Anything else?

A. It covers the brick laid in the wall with all the charges incident thereto the same as you would pay the contractor.

Q. It would include the contractor's profit?

A. Oh, yes, the net construction cost throughout includes the contractor's profit.

Q. Where did you get your information about the costs of contractor's prices in laying brick in the city of Des Moines?

A. I got some information here, and I compared it with information I had from other parts of the country.

Q. Who gave you the information here?

A. I got some from the company in a statement made up by three *three* contractors.

Q. Do you know their names?

A. Yes, I think so. Mardis was one.

Q. J. C. Mardis?

A. Yes. I don't remember the other two.

Q. Did they give you $17 a thousand as the going price in Des Moines for laying brick?

A. I would have to look up that record.

1197 Q. Did it make any difference what kind of brick were used?

A. Oh, yes.

Q. You were dealing with the kind of brick in these buildings down here?

A. Exactly, except there might be some little odd size brick there; there is a slight variation in different yards in the same locality. I have not tried to distinguish between brick that were for instance 2¼ or 2½ inch by 4½ etc.

Q. I am talking about the expenses of the cost of brick?

A. I have used the prices that appeared to me fair for the kind of brick used, and the number of brick in the given building I have taken from the inventory.

Q. You paid no attention to the number of brick except as you found it in the inventory?

A. Yes.

Q. What is the price of brick in Des Moines?

A. The price varies with the kind of brick; I would have to look up my records.

Q. I mean the kind of brick used?

A. I would have to look up my records; I never carry those figures in my mind.

Q. You got prices in other places?

A. Yes, sir.

Q. Of the kind of brick used here?

A. Yes, sir; common brick, pressed brick and paving brick.

Q. In the matter of excavations I notice, without calling for particular items or pages, that your valuation on excavation runs from sixty cents to $1.30; I think you made some higher than that; where did you get your information about the cost of excavation in Des Moines?

A. I made some inquiries and used the information from

1198 other parts of the country.

Q. If it should turn out, Mr. Lea, that the usual price for excavation, say take the excavation where these two south tanks are or holders, whatever you call them, that the ordinary usual and and every day price of that kind of excavation was from fifteen to eighteen cents per cubic yard, would you still think the Master ought to take your prices from sixty cents to $1.30?

A. My prices from 60 to $-.30 is based upon the particular kind of work and the volume of work.

Q. You know where these two oil tanks are?

A. Yes.

Q. You saw the character of the excavation there?

A. Yes.

Q. If it should turn out that you could get all the men you wanted to make that kind of excavation here in Des Moines and could at the time that work was done, and could every day since, for from 15 to 18 cents, you would not still insist that your value from sixty cents to $1.30 should be taken?

A. Not on that particular item, if I have used that.

Q. You haven't anything under sixty?

A. I have in some places. I don't remember where they are. I do not suppose my detailed items will be found to agree throughout with what you can actually do here, and a variation like the one you speak of would not affect my judgment of the value of the properties, because I know there are other items, I must have been on the other side of it. The figures I used is what I knew to be fair for that kind of work throughout the country.

Q. So your idea is, in all cases where you have valuations too high, there must be corresponding cases where they are too low, so that what you furnish is an average and not a real value?

1199 A. I furnished you what in my opinion was a fair rate.

Q. You got at it by the process of averages?

A. Averaging results which I find around the country in corresponding work.

Q. I thought you added fifteen per cent to cover your mistakes?

A. That is a different item altogether.

Q. That hasn't anything to do with those valuations?

A. Not in that sense.

Q. That is supposed to cover things the Gas Company did not know they got, or the Gas Company hasen't furnished you the items?

A. Eight per cent is to cover just exactly what I intended to.

Q. That was omissions?

A. Omissions, for instance, ordering material by various parties for the duplicate plant the cause of delay and consequent expense together with all such contingencies as all big construction work is exposed to.

Q. I thought you told us yesterday you checked those things carefully and you gave your judgment on every item of property that was in here?

A. I didn't say that. I said I had checked the inventory sufficiently to satisfy myself as to the substantial accuracy of the items given.

Q. Do you think some are not in there?

A. I know there are.

Q. Of enough importance to be considered?

A. Yes, of enough importance to be considered. I suppose the

items omitted will amount to several thousand dollars; it is physically impossible to include everything.

Q. You think you have got that high enough?

A. That is one of the things I have to include in my omissions.

Q. Then there ought to be several thousand dollars more
1200 added to your inventory?

A. No, not in my judgment.

Q. In this report of yours I notice in figuring going value you get in advertising and soliciting?

A. As operating expenses, yes.

Q. You worked that in your going value proposition?

A. Yes, on both sides of it.

Q. You never did that before, work in advertising and soliciting in going value before?

A. Yes.

Q. You did not do it at Beatrice?

A. I did not know this method then.

Q. You advised the people out there it should not be used?

A. I did not.

Q. It would be wrong to use it?

A. I certainly did not.

Q. Isn't this what you advised the Beatrice people—I will read it to you: "There must also be added to the physical equipment certain amounts which make up the difference between the value of the physical equipment alone and the value of that same equipment when actually connected up with the consumers' appliances and in actual use as a going concern." Do you remember that statement?

A. I do not; I may have made it, I certainly don't remember.

Q. You go on: "This difference is known as going value and is made up as follows: 1907 meters, $22.; $24,134. Estimated losses for three years $9,000; total $33,134." Do you remember that?

A. I don't remember it.

Q. You say you did not advise that?

1201 A. I do not say I did advise it.

Q. Do you say what I have read is a part of your report?

A. I don't know that it is not; I don't say it is not; I know where to go to find the facts if I want them.

The MASTER: Now, I see here the purifying house A and B the total net construction $9,507.

A. Yes.

The MASTER: Now figure what you added to it?

A. Each of the buildings is shown in Exhibit G, with the details making up the total net construction cost for each of those buildings. Now I take all of this total net construction cost for buildings and add them together, and that gives a total $85,723.

The MASTER: I am asking about a particular one; how do you get this sum here for building A and B?

A. By adding to the net construction cost of the building fifteen per cent and then add to it its percentage of tax during construction and the percentage loss of interest; those percentages I have in my office.

The MASTER: That is just what I wanted to know. Then as I understand it you get $11,860 the total reproduction cost, you add fifteen per cent of the net construction cost which is $9,507. and then you add a percentage of taxes whatever that may be and that gives $11,860.

A. Yes, sir. I can go right through with the building if you wish.

Q. The MASTER: Well do that now.

A. I get $10,933. Now we take the total net construction cost of all the buildings to arrive at the percentage of the total construction cost, which is $85,723; that is the total net construction cost of all the buildings, and add fifteen per cent to that which
1202 gives $98,581. the total which I have included for taxes during construction cost of the building is $2,264. We will divide $2,264 by $98,581. to find the percentage of taxation to be added to the individual building.

The MASTER: What is your percentage?

A. It is 2.29 per cent; almost two and three-tenth per cent.

Q. Of what?

A. Percentage added to the net construction cost plus engineering, to arrive at the amount of taxes. I start out with the net construction cost for building one, A and B, $9,507, and add to that fifteen per cent covering casualty liability, omissions and contingencies you have $10,933. Your next step to determine the amount of tax during construction on that amount, which is determined from the chart and each of the steps shown, and the total amount of tax allowed because of building is $2,264. The total of the net construction cost plus fifteen per cent for engineering, etc., is $98,581; that is, for taxes during construction there has been added to the net construction, plus the fifteen per cent and another percentage of 2.296, which is the average percentage to be added to each of the building units because of tax during construction. Multiply the net construction cost, plus fifteen per cent by this percentage, 2.296 gives $251. which is the amount of tax to be paid during the period of construction upon this particular building one A and B. The tax that you pay during this period of construction, must be added to the other costs of the building and they represent an outlay of cash, consequently you are losing interest on that money. But it is assumed the money spent during the given year is spent at a uniform rate. Therefore the loss of interest on that amount is only one half as much as though the amount had been placed at
1203 the beginning of the year. Then you have to add the net construction cost plus fifteen per cent the amount of tax divided by two, because his interest in only paid on half of the property, and that means you are paying $251 taxes; add that to $10,933 gives you $11,059. Your loss of interest is based on the

latter figure, $11,059. The total amount allowed for loss of interest in my report on account of buildings is $6,089 or a percentage on the net total reproduction cost of $98,581. of 6.176 per cent. That percentage has to be added to the money you have accounted for up here. That percentage worked out gives you $683. In other words, you have your net construction $9,507. to which you have added fifteen per cent, giving $10,933. Then you have added your taxes, $251 and to that you add $683 for lost interest during construction; the total amount of taxes paid on this building is $251, that is the total amount of tax paid after you made this assumption that the money going into the building throughout the year is charged at the rate of a half a year. So $251 is the amount to add here on that account. Now, then, you go back to the net construction cost beginning with building 1-A and B net construction cost $9,507. add fifteen per cent for engineering, etc., which makes $10,933. add to that the tax $251 and the lost interest during construction, $691. and you have a total reproduction cost for that building $11,875.

The MASTER: Did you figure the distribution system the same way?

A. Exactly.

The MASTER: What is the total amount of taxes you figure?

A. $72,759 is the total.

Q. Right at that point, Mr. Lea, what is the final figure that that *that that* building goes into this valuation for?

1204 A. $9,106. present value.

Q. Now, what was its reproduction cost?

A. $11,860.

Q. I mean without overhead, tax and interest, net construction?

A. Its net construction was $9,507.

Q. The amount it finally went in at?

A. $9,106.

Q. It goes into the valuation after depreciation at nearly one hundred dollars more than the net reconstruction cost, is that it?

A. No.

Q. Oh, $9,100 it goes in at?

A. It goes in $9,106 present value, the net construction cost being $9,507. It goes in at less than the net construction cost before any of the overheads have been added.

Q. How old is that building?

A. Nineteen years.

At this time an adjournment was taken until 1:30 p. m.

1205 1:30 p. m., FRIDAY, *July* 28, 1911.

HENRY I. LEA being continued on cross examination by Hon. H. W. Byers, testified as follows:

Q. What the reporter now has marked defendant's Exhibit "A" is the computation that you worked out for the master just before dinner as it affects Building 1, A and B, is that right?

A. Yes, sir.

Q. Now this computation was worked out by you by using tables and figures that appear in your report that has been marked Exhibit 20, is that right?

A. The figures were all taken from Exhibit 20. I don't know just what you mean by tables unless you refer to the columns of figures as tables.

Q. Tables or figures?

A. Yes, sir.

Q. In other words the information necessary to make this computation in the first place and to clear them up if that seems to be necessary will be found in your Exhibit 20?

A. Yes, sir.

Q. On the same method of arriving at the different items that are finally included by you in the total with respect to buildings, all the other buildings can be ascertained the same way?

A. Yes, sir.

Q. And must be ascertained the same way from your exhibit 20?

A. Yes, sir.

Q. Now you say you figured six months as the time necessary to construct this building?

A. This particular building I estimate will have been com-
1206 pleted at the end of the year 1912?

Q. At the end of the year 1912?

A. Yes, sir.

Q. Then you gave to that building as the period for construction two years?

A. No, sir.

Q. When does your period begin?

A. The building is not started until the spring of 1912, but it is completed during that year.

Q. The erection of the building is not commenced until the spring of 1912?

A. No.

Q. But it is completed what time in 1912, about according to your figures?

A. Well before the end of the year. The dates I would have to get from my office I have not got detail here.

Q. Then there would be no way we could figure out that detail from your report?

A. Yes, sir.

Q. Then you must be able to get it without getting detail from your office?

A. You have it right here. If you will look at the end of that column under the year 1912 showing reproduction expenditures you will find that all of the buildings are completed during the year 1912.

Q. I know but that does not answer my question. You have already said it was completed during that year but what I want to know is just the number of months, weeks or days you have used in your computation and in your percentages for the construction of these siveral buildings.

1207 A. I don't recall the dates of the several buildings, all I have here is the fact they were begun after the first of January and completed before the first of the following year, all of the buildings.

Q. Then there is no way we can find from the report as it is made up just exactly the period that you have used in arriving at these percentages and these figures.

A. Yes, I show here that that construction is assumed to proceed at a practically uniform rate throughout the year, consequently the taxes on the construction of that series of buildings during that one year will be the equivalent of the ordinary rate on the total amount for one half a year.

Q. Well, in other words then, you have figured on a period of six months.

A. I have assumed that the rate of investment for the purposes of arriving at taxation would be most fairly taken as running uniformly throughout the year. As a matter of fact I believe you would have a little more than half the money invested before half of the year and that would bring taxes up some but it is safe to take a uniform rate of construction there that would be fair.

Q. Then you assume the process of building would continue through the year?

A. Through the building construction portion of the year.

Q. Well how much time would that be, that is what I am getting at.

A. That is as soon as frost is out of the ground in the spring here you begin and before the frost is in again you are through.

Q. That would be about the 1st of April, is that your idea?

A. I would have to get my notes to see what date I began on definitely.

1208 Q. Could not give that information without your notes?

A. Not all that is needed for this purpose right here.

Q. For this particular building you have added in $251 taxes?

A. Whatever I worked out there this morning, I don't remember the details.

Q. That is what seems to be here, $251. What rate did you figure the taxes here?

A. At 2 and one fourth per cent per year.

Q. And what valuation of the property?

A. Full valuation.

Q. Did you know that that was not the Iowa rule or Iowa method?

A. I was told it was, I considered there that was the rule here at the time.

Q. Isn't this what you were told the rule was, you took the full valuation, say a piece of property was worth $10,000 then for taxation purposes that is divided by four so that the value for taxation purposes would be just one fourth of that, didn't you understand that was so?

A. You have not made a complete statement. I understood that the basis of assessment was 25 per cent of the value of the property and that on that 25 per cent the tax rate was 90 mills which is the

equivalent of two and one fourth per cent on the full value. I used two and one fourth per cent on the full value which I was told by the assessor was the correct rate.

Q. That is the way you got at it, you figure on a basis of 25 per cent of the value of the property?

A. No, sir; I figured on a basis of two and one fourth per cent of the full value of the property.

Q. I know, but you figured that would be equal to taking the full value of the property and putting your tax rate upon one
1209 fourth of it.

A. At the rate of 90 mills certainly.

Q. You knew of course taxes were payable but once a year here?

A. I did understand so yes.

Q. And that there is no interest or penalty or charge upon the tax until they are due and delinquent, you knew that didn't you?

A. I made no allowance for any delinquency at all, nor excess charges of any kind.

Q. In getting at your interest what rate of interest did you allow?

A. Six per cent.

Q. Is that the rate you have charged all through your computations.

A. That is the rate I have used wherever loss of interest is considered.

Q. How about your sinking fund, what rate did you allow there?

A. On the depreciation annuity?

Q. Yes.

A. Oh various rates depending on the life of the -quipment.

Q. What was your sinking fund basis, you proceed to start and how did you work it out, what rate of interest is the sinking fund supposed to bear?

A. The sinking fund I have, the sinking method I used in arriving at the depreciation annuity and only that.

Q. Isn't that supposed to b-ar a certain rate of interest?

A. What?

Q. This sinking fund.

A. Supposed to bear a certain rate of interest for certain kinds of equipment.

Q. Give us one for an illustration.

A. If the equipment has a life of fifty years and you want to determine the annuity which will necessarily be laid aside
1210 each year annually compounded at a given rate of interest to give you at the end of the fifty period that amount which you are to recover, then you would have one rate of interest. For another period to which you are to compound annually will be another rate because the life of the equipment which you are providing for will determine the rate which you can net on this fund.

Q. In this rather extended explanation when you use the term given rate of interest what do you mean?

A. Specific rate of interest.

Q. What was it, how much?

A. For what life?

Q. The life you had in mind when you gave the illustration.

A. I said fifty years.

Q. Well fifty years.

A. You want the rate I have used on the fifty year life is that it?

Q. Yes.

A. Three per cent.

Q. Now taking your building there for instance, the first building and what is the sinking fund there, the amount you say should be set aside?

A. Building No. 1 "A" and "B" depreciation annuity on sinking fund basis is $105.

Q. Now then what rate of interest should that amount bear to work out your proposition.

A. Three per cent compounded annually.

Q. Now the next building there?

A. The next building is thirty years.

Q. What per cent would that sinking fund draw in order
1211 to work out your proposition?

A. Three and one fourth per cent.

Q. Didn't you understand that was what I was trying to get at in the first place?

A. I was trying to answer your question as yo- gave it.

Q. And in all other places where you have tried to account for the loss of interest in arriving at your reproduction value you used the rate of six per cent.

A. No, sir. I used 6 per cent where I arrive at the amount of loss of interest during construction, but that is a radically different character from this, from a depreciation annuity, cannot be treated the same way.

Q. (Question read.) I am not asking whether it would be the same thing or whether the same rate would be used?

A. You said all other places. There are no other places. This is not parallel to the six per cent case referred to, this is not another of the same kind.

Q. In what instances have you figured interest at six per cent in your report?

A. In this report you are speaking of?

Q. Yes.

A. Wherever there has been loss of interest during construction it has been figured at the rate of sic per cent per year on such amounts as have been invested for the full year. If an amount has been invested for less than a full year, it has been treated proportionately.

Q. What was the reconstruction cost of that second building.

A. The total reproduction cost of building No. 1 C is $155.

Q. What is its present value according to your report?

A. $127.

1212 Q. Take the buildings altogether to sho-ten this up, what was the reproduction cost of all the buildings?

A. The total reproduction cost of all buildings $106,934.

Q. And what have you made their present value according to your figures?

A. Present value of all buildings, $82,445.

Q. And some of these buildings were constructed as early as 1876 as I remember it?

A. The oldest building is thityy five years old.

Q. The large holder down there, when -as it put up do you know?

A. It was erected in 1903.

Q. That is the largest one?

A. That is the million foot holder.

Q. Do you know what it cost the company when it was put in?

A. No, sir.

Q. Did you make any effort to see?

A. No, sir.

Q. You didn't care anything about that in arriving at your valuation.

A. No.

Q. What is your reconstruction cost?

A. The tota- reproduction cost of storage holder No. 20 is $137,988.

Q. That is the total reproduction cost?

A. Total reproduction cost.

Q. In that is all these so-called overhead charges and the interest and taxes?

A. All of the items that I have indicated are included here.

Q. That includes taxes and interest?

A. That includes taxes during construction, loss of interest during construction and the 15 per cent for engineering, casualty liability omissions and contingencies.

1213 Q. If the company had purchased—and I ask this for the purpose of bringing your theory out clearly,—if the company had purchased that holder new for say $50,000 and you had had that information would that make any difference with your valuation.

A. It would not unless $50,000 happened to be the average price of holders of that kind which I know is not the case.

Q. You were not paying any attention to what was actually paid fo- property here upon any of these items were you?

A. No, sir.

Q. You didn't regard that as a necessary element at all in arriv- in- at the value?

A. No, sir; I never use it.

Q. That is the notion I got from your theory. That is to say now your valuation rests upon your judgment as to what it would cost now to reproduce all this property without reference to what it might sell or what the company bought it for or what they could buy it for?

A. I can't answer that without an explanation.

Q. Well I will take your explanation this time.

A. My estimate of the reproduction cost of the physical property of the company is not based upon the cost to the company as shown by the books. It refers to my own estimate of what it would cost

at this time to reproduce property of this kind and quantity as shown in my table of total reproduction costs.

Q. Is there a market value for that kind of a holder?

A. As it stands down here you mean?

Q. Yes.

A. There might possibly be someone else who would be willing to take it and handle it for you.

1214 Q. Is there a market value to that holder?

Mr. GUERNSEY: Probably he don't just understand what you mean by market value.

Q. Is there a market value for that kind of a holder?

A. Certainly.

Q. What is the market value of that kind of a holder?

A. Erected in Des Moines $137,988.

Q. I am not asking your reproduction cost, I want to know what the market value is.

A. Is what I base my cost on.

Q. Do you know of another one like it?

A. Perhaps not like it, I don't know *whether* another holder having 1,132,000 cubic feet capacity perhaps.

Q. Then it does not have a fixed market value?

A. It certainly does.

Q. Who fixes it?

A. I don't know who fixes it.

Q. You don't know of any market value put on that except the one you put on?

A. Not talking of this specific holder I understand.

Q. Or any holder like it?

A. Now what you mean to ask is was there a market value of holders?

Q. To establish the market value or how was it established on this holder?

A. The only way any market value is which I presume to be the operation of the laws of supply and demand.

Q. Was there any other market value other than what you gave?

A. What do you mean by the question, I don't get it.

Q. You don't understand the question?

A. No.

1215 Q. If you were to be asked tomorrow by some client what holders like that were seeling for on the market what would you say to him?

A. I would not say this amount of course. That is not the sale *pr* price, that is not the contractor's price.

Q. What would you say?

A. I would say if you want to know what that holder costs when erected——

Q. No if he asked you what the market price was?

A. Go figure up the construction cost and give it.

Q. Tell him it would be worth the construction cost?

A. No tell him if he wanted a holder like that under conditions similar to Des Moines that would be the net construction cost.

Q. Then it has to be worked out here in Des Moines and apply to conditions and prices here?

A. Obviously.

Q. And is that the way you work this out?

A. It is.

Q. Now then if this gas company purchased that holder here in Des Moines, been bought and set here for a fixed price wouldn't that have something to do with the market price of such a holder here in Des Moines?

A. Make that a little more clear.

Q. (Question read.)

A. Are you asking whether the price paid by the Des Moines Gas Co.——

COURT: Just answer the question.

A. I can't answer his question Judge.

Q. If it should appear that the Des Moines Gas Co. went into the open market, bought the material, whatever is necessary to
1216 go into that holder, paid for the labor that was necessary to construct it, and paid for every item that was necessary to make a complete holder and then the sum total of all these expenditures was 50 per cent less than you had in your figures and you had known that in advance of making up your statement here, would it have made any difference with the valuation?

A. No, sir.

Q. You would not have paid any attention to that?

A. I would not.

Q. That would not have affected the value as far as you are concerned?

A. That would have been an abnormal condition, I would not have considered it.

Q. I wish you would give us the tables you used in determining the average investment age?

A. You will find them in the report.

Q. Tell us where we can find them?

A. Immediately following the double sheets in Exhibit "D." The sheets labeled average of mains, average services, average age meters, the three sheets immediately preceding the blank sheet with the letter "E" fastened to it.

Q. Turning to your meter table, on page 12. You have figures out there the average age of meters to be 8.27. The figures from which you got finally that result appear in this table do they not? You take the life of each meter in years as you determine it or fraction of years as the case may be, and then you take the total number of meters in use each year from 1886 to 1910 and then you add the sum total of the figures in the last column and the sum total of the figures in the third column, and divided the larger num-
1217 ber by the smaller and got 8.27. That is the way you arrive at that?

A. That is the average of meters on the installation basis.

Q. Now then below that you say average of meters on investment basis, 7.7. Now how do you get that?

A. Same scheme.
Q. Well give us the figures. Where could you find the figures?
A. They are not here.
Q. I asked you for them yesterday or day before. Have you made any effort to get them for me?
A. No, sir.
Q. Where are they?
A. I don't know.
Q. Are they at Chicago?
A. I can tell you how I arrived at that result if that is what you want.
Q. Where are the figures?
A. I don't know.
Q. Do you have the memorandum in Chicago?
A. I believe I had it there once.
Q. Is it there now?
A. I don't know.
Q. Which of these average ages did you use in the final computation?
A. The only one you could consistently use which is the investment basis figure.
Q. The one we don't have the figures here for so that we can check.
A. That happens to be so but you can easily check it.
Q. Will you furnish us the figures from which you worked this item 7.7.
1218 A. I will if I can find them.
Q. You stated a moment ago we could easily check it?
A. Very readily.
Q. How do we do that without the figures?
A. By using your own unit numbers on meters if you know those units to be correct. Get the unit prices and they work out from that
Q. I want to get Mr. Lea, you furnished this table here and I would like to have you furnish the figures by which you worked out this 7.7, and you will be expected to furnish them before we are through with you as a witness. How did you get at the age of these meters?
A. From the records of the company.
Q. Who furnished you the memorandum?
A. I don't remember.
Q. Where is that memorandum?
A. I don't know.
Q. Do you have it in your office at Chicago?
A. I think so.
Q. You used the memorandum as the basis of these tables didn't you.
A. This total was made from these figures, I don't know whether in my office or not.
Q. If we wanted to determine the accuracy of your figures from the memorandum you used to make them we would have to have that memorandum wouldn't we?
A. No, indeed you would not. All you would have to have would be one of the books that was in court a few days ago.

Q. That would show the whole business?

A. That would show you all the material from which these tables are built.

Q. So you assume to state that the memorandum that was
1219 sent to you is exactly the same as the memorandum we would find with the book here in court?

A. I didn't say that.

Q. Did you ever examine the book, check it up with the memorandum you had?

A. No.

Q. So you don't know anything abo-t that you just assume the book will show exactly what the memorandum was?

A. I know exactly what I said, it was that in that book you will find all the material needed in building up this table as to the numbers of meters.

Q. Would we know how to figure it out?

A. I didn't say you would know how.

Q. The memorandum with respect to these meters was a part of the memorandum and data that was furnished by the gas company?

A. Yes, sir.

Q. For your purposes and from that memorandum and data as far as it was available, as far as you had it, you made up these tables of figures?

A. Which tables are you referring to now?

Q. All of them that appear in your Exhibit 20.

A. You will have to be more specific, I can't answer that broadcast.

Q. All of them on page 12?

A. That is the page age of meters?

Q. Yes.

A. The data on the sheet labeled average of meters showing years, total number of meters end of year, number of meters installed during year and years in service, all these figures were obtained from the records of the gas company.

1220 COURT: You didn't examine the records of that?

A. No, sir.

COURT: You don't know whether they have them or not?

A. No, I don't know whether they had 1970 meters but I took it for granted they did.

COURT: Just assumed that?

A. Yes, sir.

Q. There was a memorandum furnished you, I don't care whether it was the records of the company whether they got it from the books or where they got it, but the memorandum from which you worked out these tables especially the one on page one of Exhibit 20 and the one on page 11 of the same exhibit and the one on page *of* ten of the same exhibit were furnished you by the Des Moines Gas Co?

A. They were.

Q. Now turning to page 11, I notice there that you have used a little different method in arriving at the average age and the fourth column instead of being total service years as the other is total meter

years, you say total dollar years. Now just how did you — at this total dollar years?

A. Multiplying dollars shown in the second column by the years shown in the third.

Q. That is you took first the item there, 1910, that is in the first column, in the second column is the item 18,579. Now what does that represent?

A. That represents the estimate made by somebody of the cost of putting those services in the ground.

Q. And furnished to you in the form of a memorandum?

A. Just as you see it here.

Q. Somebody furnished it to you just as it is here?

1221 A. Yes, sir.

Q. Originally?

A. Yes, sir.

Q. They didn't furnish you this sheet?

A. Not that particular sheet.

Q. Nor these figures?

Q. Not this particular piece of paper no.

Q. But did furnish you another piece of paper upon which these figures appear?

A. Yes, sir. These are not my figures, I have not been governed by these figures in any extent.

Q. You understood the company was furnishing these figures to you as figures that could be found on their book records?

A. No, sir.

Q. What did you understand?

A. I understood these figures were not made from anything on the books but they were arrived at by using certain units which one of the engineers of the company had selected.

Q. What units do you mean?

A. Units as to price. I don't know what units we used nor anything about that and I didn't accept them. The calculation is correct for the purpose——

Q. Why did you offer them here if you didn't accept them?

A. Because this is not a table used for valuation, this is a table used in arriving at age of the services. It shows that even with any number of dollars in this column so long as the ratio between the units for different sizes be correct, that ratio may be made up with figures twice too high or fifty per cent of what it should be.

As long as the ratio is maintained you get correct figure in

1222 years.

Q. Then this table don't represent anything in the way of existing facts or figures as it appears here?

A. Not to my knowledge it don't represent anything concerning value as far as I know.

Q. They are of no importance?

A. I never so considered it. That table is but a method of arrivin- at the age.

Q. You didn't arrive at the age, investment age of the services on

page 11 in the same way you arrived at the investment age on page 12 did you?

A. The same way, yes.

Q. Exactly the same way?

A. Exactly the same way.

Q. You had figures furnished by somebody else?

A. I didn't use the figures. I used figures for the method of calculating the composite age all I wanted was the composite age.

Q. Page 12, these figures and that computation was made upon figures that were taken off here as I understand?

A. They have been here but they are not *n*ere now I believe. They may be in some of these records now, I am not sure.

Q. Turning to page 10 is another table somewhat similar to the tables we have just been using. In this table you proceed on the installation basis alone do you?

A. The conclusion shown here is on the installation basis but the investment basis calculation wa- made also.

Q. And that was worked out at the time this report was made was it?

A. I don't remember the time at which it was made.

Q. Well during the time this report was in preparation.

1223 A. It was before I came to work out the depreciation in my report I know.

Q. Now where are the figures and memorandum from which you made the table that appears here on page 10 with respect to the investment age.

A. I don't know.

Q. You filed them with your other memoranda and paper at Chicago?

A. I presume they are in my office.

Q. Anyway they are not here?

A. They are not here.

Mr. BYERS: We would like to have the witness directed to produce the memoranda and figures upon which the table as it appears here on page 10 or rather the average investment age was figured out and -rrived at as shown here on page 10 and also on page 12, so that we can have them before the witness is excused.

COURT: If you can produce them I wish you would do it. If the compilation made was incorrect, that of course would bring incorrect results.

Mr. GUERNSEY: I may say in this connection we expect to prove the correctness of it before we get through.

COURT: If you can do so I would like to have you produce them. I mean the memoranda that was furnished you.

A. This is a copy of the memoranda that was furnished me. The one I got is the original from which I copied this showing how the age was arrived at.

COURT: Well get it if possible because figures are like logic you know, if you start wrong you will be wrong yourself.

Q. You stated this morning or yesterday, at least some time during

several days that you have been with us that it would require a million dollars to cover new construction during the next
1224 seven years. I wish you would itemize that for us.

A. I arrived at that figure by using units, we consider large portions of the plant as a whole and I can't itemize that without a great deal of time. I will have to detail that if you want it itemized.

Q. What was your idea in stating it?

A. I know the figure carried as a full capacity unit.

Q. But how are we going to know?

A. I don't know how you are going to know.

Q. Not even the Master could know that?

A. Yes, we can provide him with all details.

Q. But you have not done that?

A. No.

Q. Well I wish you would — that too before you are excused. There is no way that can be done now is there?

A. No.

COURT: Where did you get this?

A. I have the lump sums which I used.

COURT: Have you got the details of this?

A. Oh no, I would have to work it out in detail, work up this machine and work up that, what the additional would be and sized building you would have to have. Aside from that we know from experience the grand total figure per thousand feet of gas made, what that would be. This is extensions necessary to take care of the business which this company will doubtless take in addition to what it now has within the next seven years. Seven years from now this plant will have to be bigger than now. Mr. Byers is asking now how much money will this company have to put into additions to the plant in the next seven years. I can give you lump sums on that which are based on unit cost per thousand feet *feet*
1225 of gas making capacity but can't give it to you in detail witho-t an awful lot of work.

Q. You worked that out to some extent in your mind?

A. Why yes.

Q. Give us as near as you can in a general way the principal items that have to be used.

A. I seem to have left that in my room. I thought I had it here, but it is not here. I did work it out some days ago and arrived at something over a million dollars. I can find it in my room.

Q. We will take it up at some other time. In reaching your average of meters on page 12, Exhibit "D" of Exhibit 20, you give 1261 meters as having seen 29.1 years of service. Is that the actual years of service of that many of the meters or is that simply an arbitrary number that was used to work out your age basis.

A. That is not the average number of years. That 29.1 you will notice gives 1261 meters which were in use at the end of the year 1886. Prior to the year 1886 the records do not show the number of meters used per year. Consequently from the records as they did exist back to 1886 a curve was plotted and then the curve was

extended back to 1864 as the most correct method of determining how many meters had been installed at the end of each of the several years covered and it was found of course that there were more meters added per year during the end of the period than at the beginning the result being that the composite age of the whole 1261 was as shown here but not one of these meters that had been in use 29 years.

Q. What I want to know is whether there figures are to be taken as representing 1261 meters that had been in service for 29.1 years?

A. Certainly not, and I just was explaining it to you.

1226 Q. What you do claim is that they had been in service an average of 29.1 years?

A. That is not what I claim.

Q. Neither of these things are true?

A. No, sir.

Q. What do you claim?

A. Just as I have expressed it. This is the composite average.

COURT: Composite is what you call true average?

A. That is the true average. Of course that don't mean 1261 meters have been in 29 years each. Meters don't last 29 years.

Q. That is what I was trying to get at.

A. A much simpler way of getting it.

Q. The same is true as to 1304 meters there that you use the term 23 years, is that right?

A. It is not.

Q. Well does it mean that they have been in service 23 years?

A. It does not. It does not mean 1304 individual meters have been in use 23 years.

Q. What does it mean?

A. Means at the end of 1887 there were in use 1304 meters. Of course these meters have been replaced from time to time as individual meters.

Q. Well then haven't you instead of getting the age of the meters there haven't you got the age of the service and connections?

A. No.

Q. Isn't that — you have done?

A. No, sir.

Q. How did you get the basis for these figures for this composite average you tell about?

A. I have explained as fully as I can.

1227 Q. Wasn't that done as you said here a few days ago by examining the record showing the meters that were in service?

A. It was obtained exactly as I said it was obtained and in no other way.

Q. And how was that?

A. The record will show, I have forgotten the wording.

Q. Who furnished the information to you?

A. The gas company.

Q. And in what form did they furnish it?

A. The form you have it there.

Q. What do you mean by the form I have it?

A. Just that.

Q. I haven't it in any form?

A. The report is in your hand isn't it?

Q. I will put that question in another way. Was this information furnished to you by the gas company in the form of a memorandum other than the memorandum you have set out here in your report.

A. It was furnished to me on a piece of paper which is not the pi-ce of paper in my report, but the form in which the information was arranged and the facts stated in the information given me are as shown in my report.

Q. Im other words this is what you claim to be a copy of what somebody else furnished you?

A. Copy of the record taken from the books of the company.

Q. Did you see it taken from the books of the company?

A. I did not.

Q. How do you know it was taken from the books of the company?

A. I believe the man that told me it was from the records.

Q. How do you know it was?

A. I don't know it.

1228 Q. All you know is it was furnished by some individual. Who furnished it?

A. I don't know what individual furnished it to me.

Q. Doesn't this table show the average age of the installation meters rather than the average age of the meters?

A. It does not.

Q. Turn to page 12 Mr. Witness of your exhibit 20 in the third column near the bottom under the heading No. of meters installed during the year, the figure 17 appears opposite the year 1889, and opposite the figure- No. 2338. Now were there 17 meters now in use, installed and in use that were installed and in use in 1889?

A. That sheet does not say they were.

Q. That is not the question I asked you?

A. I don't know.

Q. Did you assume that?

A. I assumed this table to be correct.

Q. Then you assume there were seventeen m-ters in use now that were in use in 1889?

A. I did not.

Q. Well what did you asume to be correct with respect to that?

A. That of the total number of meters now in use it is fair to say that a p-oportion represented by seventeen meters has been in use for a period of twenty one years and nothing else.

Q. You mean then seventeen of the present m-ters?

A. I didn't say that.

Q. Did you mean by that that any one of these meters have been in use for twenty one years?

A. It is possible some one of these meters has been in use
1229 for twenty one years.

Q. How many do you assume have been in use?

A. Of no interest to me how many had been in use. I want to know the composite age, not the individual age of each meter.

Q. You have to have something to start with?

A. I have it right here.

Q. You didn't start with this only, this is only a memorandum.

A. No, this table was made from the records, but this is all I need.

Q. Take the one above where it says number of meters installed, third column, 200 opposite the year 1890 and total number of meters, 1538. Does that represent or intend to represent that there were 200 of the meters that had been installed during that year and now in use, hadve been in use since 1890?

A. Certainly not.

Q. You have the same answer for that, as you had to the seventeen?

A. Exactly.

Q. And the same as to all of these?

A. To all the others.

Q. I wish you would explain just a little further for me—I don't seem to get that through my head very clearly,—just the ourpose of this table and what was accomplished by it, how it can be used to test and check up any part of your report?

A. The meters used by this company are of various sizes. Each year there is installation of a number of meters, but in that number there is a varying proportion of the different sizes of meters. A compilation and record showing the actual number of five light meters installed during the year 1886, together with the number of three light meters that same year and all the other sizes tahat may have been installed that year and maintain a record of each
1230 individual meter up to the present time showing how often it has been repaired or renewed or replaced entirely would involve an amount of work that is beyond all reason. The practical way of arriving at the composite life of the meters in any plant is to make a table like this having as a foundation the total number of meters in use. Now the number put in in a given year as I said before has always various sizes and the best you can do is to strike an average for all of these years as to the ratio of one size of meter to the other sizes installed in a given year. That is fair to all concerned and it is found to be correct in practice. Now then having determined the total number of meters gained during each of a given number of years and having assumed that you are taking an average size of meter which you have to do as I have explained then this table does show that with the number of meters installed in a given year may be found the percentage of the total number which the meters installed that year represent. That is all that table shows as far as that second column is concerned.

Q. I know, but now after you have done all that what have you accomplished?

A. When you get through with the rest of the calculations you have determined the composite age.

Q. To come back to the seventeen, you are trying to figure out the socalled installation age of the meters and you start in that column with the year 1889 and the number 1338 and then 17. Now that number 17 is the basic number for your computation as to the years to go into your year column isn't it?

A. Yes, sir.

Q. Now you get it into your year column by multiplying 17 which is in the meter column by 21?

1231 A. Yes, sir.

Q. Which is the years in service and you get a result of 357. In other words the years of the seventeen meters that have been in service as this service would indicate at least to a novice for twenty one years made the total of years to go into your years column of 357 and the same is true of your 200 just above seventeen; you take the year 1890 and take the number of meters 1538, the total number of meters and then you take 200 as designating the number to count in your years and multiply it by twenty do you not and you get four thousand?

A. Yes, sir.

Q. And then that column you continue that way until you get the total number of meter years and then divide it by the total number of meters installed, that is the way you get your installment age?

A. No, sir.

Q. I mean the average age?

A. No, sir. Divide it by the total number of meters installed.

Q. That is what I said isn't it?

A. Beg your pardon, I thought you said in stock.

Q. Supposing during these periods one third of these meters had gone into the scrap heap and other meters taken their places would that make any difference in your table?

A. This table is based on the record shown on the number of meters installed, this has nothing to do with the determination of the rate of depreciation to meters, I show the number of years as a composite age of the whole number of meters.

Q. It has little to do with any part of the real bases of your valuation here?

1232 A. It has a very important bearing — the number of years composite age of the meters is a very important item, but this table has nothing to do with the rate of depreciation to be allowed because of the scrappage of meters.

COURT: On page 9 you give the average age 7.7 of the meters?

A. Yes, sir.

COURT: Life twenty five years.

A. Yes, si-.

COURT: And per cent condition 80 per cent.

A. Per cent condition, that is the condition a meter of that average would be in.

COURT: You add the same taxes and per cent of interest to that

A. Not the same per cent of interest while constructing that part of the system.

COURT: You add the 15 per cent to that.

A. Yes, have to add 15 per cent.

Q. How much of a meter aside from the shell can be used without removing for more than ten years?

A. Very often all of it except the diaphragm.

Q. How much of it can be used for more than fifteen years?

A. Same answer.

Q. Nearly all of it except the diaphragm?

A. Very often that is the case I said.

Q. What would you say is the avarage age?

A. Can you make that more specific. The average time that elapses before the meter needs repairing of any kind?

Q. No, before any part of it cannot be used except the shell without renewal.

A. I would have to refer to detail records to give you the average life before each of the many kinds of repairs become necessary. The figure used here is only my indication as twenty five years'
1233 life for a meter as a whole?

Q. You can't answer the question as put to you?

A. Not without further details in my office.

Q. What is the value of the shell of a five light meter?

A. The shell alone?

Q. Put a value on it.

A. I don't know.

Q. What is the value of a ten lighter meter, the shell alone?

A. I don't try to keep those prices in my head.

Q. You don't know?

A. I have records, but I don't keep them in my mind.

Q. Have you got it here?

A. I am not sure that I have*m* I will see. I have not the detail here as to the cost of the shell alone.

Q. After the completion of your report as to the value of this property, the physical property, what per cent condition did you finally leave it in?

A. What portion of the property do you refer to?

Q. The physical property.

A. All of it except the real estate.

Q. Yes.

A. That is shown in Exhibit "D."

Q. 85.3?

A. 85.3 is the present per cent condition of the total physical equipment of the Des Moines Gas Company excepting its real estate.

Q. And *is* your computation and your reproduction on the theory and basis on which you figure it out would represent a condition of 85.3.

A. Figured on a basis that requires certain conditions as
1234 standard that is the per cent condition of this plant today.

Q. I wish you would answer that question as put?

A. 85.3 is the composite per cent condition of the total physical property except real estate of the Des Moines Gas Company.

(Question read.)

A. You haven't asked me a question if you want to take it technically.

Q. Give me yes or no.

A. I can't.

Q. We are dealing alone with your report, your figures and as you have valued this property and worked it out in this report, Exhibit 20 you live it in an 85.3 per cent condition?

A. Yes, sir.

Q. Working capital you cover in your report, is that for the purpose of construction or operation?

A. That is the amount you require when you get into operation on the present scale.

Q. Any part of it for construction?

A. A portion of it has been used—if you mean in the calculation for the hypothetical plant?

Q. Yes.

A. The report shows how fast I have assumed this money to be required.

Q. Part of it you use up in construction?

A. No, sir; I have not used it up, it has been used in connection with construction.

Q. Part of it used?

A. Part of it necessarily used in connection with construction. It was not as an investment.

1235 Q. And part of it in operation.

A. Part of it used until the plant was in operation.

Q. It was used in operation?

A. It became necessary when the plant got in operation to use additional working capital.

Q. If any part of it was used for operation how would that affect your taxes and interest proposition.

A. If it was used for operation it was not working capital.

Q. You have just said part of it would be used in operation?

A. No, sir; I said when you began to build this plant in addition to the costs shown by material and labor and the other items entering into construction costs you have got to have certain ready cash with which to work. I show in my reproduction chart how fast you would have to accumulate this working capital. When you have acquired a business equal in extent to tha- of the present Des Moines Gas Company it will amount to the figure I have shown here as a total.

Q. As you have figured it out have you provided the amount of working capital that is set forth here simply for construction?

A. Certainly not. It is not so shown.

Q. How much of it is for construction?

A. None of it permanently for construction.

Q. Turning to page 3 where you have your working capital you have an item down at the bottom there loss of interest during construction?

A. Yes, sir.

Q. That is loss of interest on this capital that is to be used in operation but is held during construction, is that the idea?

1236 A. No, sir. If you will look at my reproduction expenditure there you will see exactly what it covers. During the year 1911 the hypothetical plant would have to have in my opinion working capital of $22,000. During the following year $40,000 additional would have to be installed. The following year $80,000 additional would have to be provided and throughout that period you have been accumulating taxes during the construction period chargeable to the money which is going into this working capital fund and which appears at the end of -he construction as working capital for the operating plant. It is the amount of money that goes into construction or into part of it that constitutes liquid assets necessarily used in the conduct of the business consyruction and operation.

Q. Finally all go to be used in operation then?

A. Certainly not.

Q. What portion?

A. The money used in operation is spent in operation.

Q. What portion of this money is set asid- finally to be used in operation?

A. I suppose every particular dollar of this fund may go into operation, but if so it is replaced by another dollar. This fund as a fund is retained intact.

Q. All used in operation?

A. Certainly. In the conduct of the operation of manufacture and distribution.

Q. Turning to your working capital again I wish you would explain a little more fully the item $39,607.29, why that is included and what your notion about it is?

A. That is not included.

Q. It is not included?

A. Certainly not. That is an item which must necessarily be deducted from the gross working capital.

1237 Q. I don't care what you do with it, you take it off of this total $181,377.29. What I want to know is why you used that item in that statement at all?

A. Because I want to know what the net working capital is. I don't care about the gross.

Q. You get at that by deducting the accounts payable out of the gross working capital?

A. Get at the net working capital.

Q. Do these accounfts that you have used here include the average carried liabilities through the year on pay rolls and taxes and insurance water rent, and so on?

A. What item are you referring to?

Q. $39,607.

A. That covers all accounts payable of whatever nature so long as they relate directly to the business of manufacturing or distributing gas in the city of Des Moines.

Q. Does it include any thing that has not already appeared on the books accrued liabilities of any kind?

A. You will find in the standard classification of the American Gaslight Association what items it covers?

Q. That is not what I asked you.

A. I don't remember the items.

Q. This item $40,201.89 I wish you would explain that to the Master why it is, in what way found in Exhibit 20?

A. That is the total value at the time of taking this inventory of all working supplies in the store room.

Q. Was that just what was on hand at that time?

A. Yes, sir.

Q. You didn't then try to get the average stock that was carried through the year, you just took what was on hand the first

1238 day of January.

A. Well I had seen the stock and I drew the impression that was a reasonable amount of stock, presented a fairly average amount of stock.

Q. I didn't ask you that. I simply wanted to know if you took the amount that was on hand the 1st day of January 1911.

A. Yes, sir.

Q. Do you know the average monthly sales being made?

A. Of what?

Q. The stock?

A. Don't sell stock.

Q. Don't sell it at all?

A. All of it, a lot of that is pipe.

Q. What they do sell do you know what the average monthly sales are?

A. No, I don't. I have seen some figures on that, but I don't remember.

Q. Do you know what the average monthly consumption of this material stock and all is.

A. By the company you mean?

Q. By the company.

A. No.

Q. How much generator fuel stock is included in the item $10,449.98?

A. I have not the detail here.

Q. Have you it anywhere?

A. I had it I believe in my office.

Q. It is with this memorandum I have several times asked for.

A. I presume so.

Q. You will produce it?

A. If I can.

1239 Q. Do you know what the average consumption of generator fuel stock is?

A. Not off hand. I have memorandum whowing what it is.

Q. That is with this memorandum?

A. Yes, sir.

Q. How much oil is represented by the item $9,301.81?

A. I don't remember the number of gallons.
Q. You don't remember anything about details about that?
A. No, I do not.
Q. You have the figures with this memorandum?
A. I believe so.
Q. Do you know what the average monthly consumption of oil is?
A. No, I don't remember the amount.
Q. Does your memorandum show that?
A. I think so, I have a memorandum or have had one showing it.
Q. Did you make any comparison of the average used to determine whether or not the first day of January was typical of the year or not?
A. I made a calculation showing that it was a very reasonable amount of oil to carry in stock in a place located as this is.
Q. That is not quite an answer.
A. I made such an average, yes.
Q. Do you know what the average amount of all the material and supplies on hand wa- during the last four years, the average amount they have carried?
A. No, I do not.
Q. Did you have any figures showing that?
A. I don't believe I had any figures showing that item for the years back. That naturally varies with the growth of the plant.
Q. On the first day of January 1911 you estimate in your
1240 statement here cash items $49,434.15. Did you make any investigation or comparison with other years on that, the cash the first of the year?
A. I have seen statements for other years that make this look reasonable.
Q. Whose statement?
A. Statements of the Des Moines Gas Company.
Q. Furnished to you?
A. Yes, sir.
Q. Are they with these memoranda that you have in your office?
A. I don't remember.
Q. You filed it away didn't you?
A. I presume they are there, but I don't remember that. That is not the kind of information I would file very carefully.
Q. How much of this $49,434.15 was drawing interest or do you figure as having drawn any interest?
A. I don't know whether any part of it was. I believe it was all held for quick work and the interest on it would be a negligible amount.
Q. At any rate you have not given the other side of the account credit for interest on that?
A. For the reason they might very readily carry a larger sum of cash than that and still be within the reasonable practice.
Q. At any rate you have not taken into consideration the interest pn that.
A. No, I have not.
Q. If it should turn out to be a fact that your allo-ance for real

estate, $259,000 odd dollars aside from the improvements and the organization and legal expenses, $68,023 a total of $327,678 is $5000 in amount larger than the entire investment in the plant for all purposes up to June 30, 1888 after this property had been in operation 12 years, would that have anything to do with your figures?

1241

A. Of course not.

Q. What is the latest important piece of construction by the gas company?

A. I believe the 10 foot six water gas set, I believe was the latest important extension made at the plant.

Q. And when was that?

A. About 1909 or '10. It is two years old now.

COURT: That is the first they used water gas?

A. No, this is the biggest machine they have. They had four machines before that.

Q. When do you say they got that?

A. Within two years.

Q. Do you know what it cost the company?

A. No, sir.

Q. Did you make any inquiry to find out?

A. No, sir.

Q. Don't you think that would have helped you some?

A. Not the slightest.

Q. You would have had placed the same valuation on it if you had known that the company bought it for 25 per cent less, bought it in the open market for 25 per cent less than you have given credit for it in your computation?

A. I would.

Q. And knowing too that your proposed valuation was to be urged upon the Master in this case for rate making purposes.

A. Yes, sir.

Q. Now what other important piece of construction have they made within the last three years that you know of.

1242

A. Well they have been doing a great deal of street work, running mains and services and meters, setting meters.

Q. Give us some one important thing that amounts to enough to bother with it now?

A. Well take the oil tanks No. 24 and 25, the two large oil tanks over by themselves.

Q. When were they constructed?

A. Within the last two years.

Q. So undoubtedly every single item of expenditure on the part of this company in connection with these two tanks appears on the company's books does it not?

A. I don't know.

Q. Well you have not hesitated heretofore to say all these other things appeared on the company's books?

A. I have not said all these other things, I specified the things of which I have knowledge.

Q. Did you make any inquiry to find out?

A. No, sir.

Q. You didn't ask the gas company or any individual in connection with it what it costs the company to put in these tanks?

A. I should have been greatly surprised if I should have found it on the books.

Q. That is not an answer.

A. I didn't ask them.

Q. You didn't ask the company or anybody else how much it cost to make the excavation there?

A. No, sir; not as to that particular excavation.

Q. I mean as to that.

A. No.

1243 Q. You didn't make any inquiry of anybody to ascertain how much the contr-ctor received for the brick work?

A. No, I made general inquiries as to the cost of brick work in Des Moines.

Q. I am not asking about general inquiries, talking about this particular construction now of thes- two tanks?

A. No, sir.

Q. You didn't make any inquiry of anybody either contractors or the company to ascertain how much the company paid for the steel work that is there.

A. No, sir.

Q. Steel construction. Then for both of these tanks as I understand your answers they were put in there within the last two years?

A. They were within the last two years according to the record.

Q. Now what do you credit for these two tanks on your computation?

A. The reproduction cost total $20,500.

Q. That is for both of them?

A. Yes, sir.

Q. Now if it should turn out that the gas company or to put it in another way the total expenditure of the Des Moines Gas Co., upon these two tanks covering every item of labor and material and construction on both of them was say, $12,500 would that make any difference with your estimate of the reproduction cost or value of them?

A. Not the slightest.

Q. Then why did you ask anybody in Des Moines brick men or carpenters or excavation men or anybody else about prices of work in Des Moines?

A. Because I have to arrive at units.

1244 Q. I know, but why didn't you try to arrive at some of your units by ascertaining with respect to some definite piece of work like the Des Moines Gas Company work.

A. Because I have made estimates, I have considered so many pieces of work of so many kinds and so many places when I determine in my own mind the reasonable units I am willing to stand on my own prices.

Q. There is a lot of brick work in those two tanks.

A. Quite a bit.

Q. You took Mr. Mardis' work and went to two other contractors?

A. I didn't say I did.

Q. You said something about Mr. Mardis?

A. Yes, I said he was one of the contractors who provided lists of unit prices to the gas company and which list I have seen.

Q. When you got Mr. Mardis' statement of figures whatever they were as to brick work in Des Moines, if you had gone to the Des Moines Gas Company after you got Mr. Mardis' statement as to the brick work and the Des Moines Gas Company had told you that they went into the open market and had the brick work done down there in these two tank erections there for $12.50 a thousand, which figure would you have taken in trying to work out a fair value of this property, what the gas company told you they -ctually paid for the work or what somebody had told you was the usual price in the city of Des Moines?

A. I didn't ask the gas company what they paid. What the gas company would say it had paid would not have effected my valuation in the slightest.

Q. You would rather have somebody state as to his opinion what the general prices or ordinary prices had been in Des Moines for brick work, that would weigh more with you would it than
1245 the actual expense of putting up brick work itself, that is your idea?

A. That is not my statement nor my idea. When I am to make a valuation of a plant I do not want to——

COURT: Just answer the question and stop.

A. I can't answer without explaining.

Q. The Des Moines Gas Company built a building down there just a short time ago didn't they?

A. Yes, building No. 7 is comparatively new.

Q. When was it built?

A. Within the past two years.

Q. In that building what did you allow for brick work?

A. Well I can give you the net construction cost on brick work. I have got it all, but you don't want the reproduction tota-.

Q. No, I want the net construction cost of the brick work.

A. I have the brick in the walls at $17.00.

Q. $17 a thousand?

A. Yes, sir.

Q. How many thousand were there?

A. 112,698.

Q. That building was erected within you say two years?

A. Yes, sir.

Q. I suppose soon after you came here you went down to the plant?

A. Yes, sir.

Q. And you began immediately to get your information with respect to local conditions and local prices?

A. Yes, sir.

Q. You observed when you were down there that this building was of very recent construction didn't you?

A. Yes, sir.

1246 Q. You knew or naturally must have known the gas company had had it erected within very recent years?

A. Yes, sir.

Q. Now did you make any inquiry of anybody in connection with the gas company to see what they paid the contractor that laid these brick?

A. No, sir.

Q. Did you make any effort to find the contractor who did the work?

A. No, sir.

Q. Now if you had made that inquiry and the gas company had inform- you that that work was done here by brick masons in Des Moines for $12.50 a thousand, would that have helped you any?

A. No. sir.

Q. Have you figured out the per cent that your overhead charges bear to the entire cost?

A. No, but I can give it to you very readily here. By overhead you mean total engineering, casualty liability, omissions and contingencies, loss of interest during construction.

Q. I mean all the items that you understand and engineers generally include in overhead charges.

A. You will have to be more specific if you want that in percentage. the figure which I am speaking of is $582,699, which I showed you this morning. That is the one you want the percentage of?

Q. Is that what you call overhead charges?

A. No, that is what you call overhead charges.

Q. It is properly called overhead charges. I am trying to get what you have added to the value of this property that is not covered by the physical end itself in the way of overhead charges if that is a right term to use.

A. Well you can't use that in the way you now asked for it
1247 because the going value is an attribute of the physical equipment I can give it to you exactly as I have it here. I think that is what you want.

Q. How do you mean?

A. Total engineering casualty liability, omissions and contingencies plus total taxes during construction plus loss of interest during construction.

Q. All right give me the per cent that bears to the total co-t.

A. It is a trifle over 16 per cent.

Q. What was the sum of these amounts you used for the devisor?

A. The sum of $582,699 which is the total covering the money reported for engineering, casualty liability, omissions and contingencies, taxes during construction and loss of interest during construction represents a trifle over 16 per cent of the total present reproduction cost of the property.

Q. That does not include legal expenses and organization.

A. That per cent is based on the total reproduction cost?

Q. You don't include organization and legal expenses in your divisor?

A. No.

Q. Did you make any effort to ascertain how that per cent appears with what the company had actually paid for these things?

A. No, sir.

Q. You don't know they had to pay any of it?

A. No, I do not.

Q. You made no effort to ascertain that?

A. No, sir.

Q. I wish you would do just one little further job of figuring for me and then I believe I will drop figures, if you will tell me taking all of your overhead charges with your organization and legal expenses and going value and paving and tell me what per cent that is of the total cost as you have it in your re-

1248 port?

A. Based on reproduction?

Q. Yes.

A. Put in real estate?

Q. Real estate as overhead?

A. I have simply taxes during construction.

Q. That is all right, I want that in.

A. You want to include the go-ng value too with this?

Q. Yes, the total making allowance for going value.

A. Making allowance for going value $583,000 plus the total shown in my report for engineering casualty liability, omissions and contingencies, taxes during construction, loss of interest during construction amount to $582,699, the figure corresponding to net construction cost for working capital $142,000 the figure sorresponding to net construction cost of organization and legal expenses $62,000 added together make $1,369,699.

Q. Did you add working capital there?

A. I added working capital exclusive of taxes during construction and interest during construction.

Q. I want you to leave that out and I want to put in the paving.

A. The total of the equivalent of net construction cost for organization and legal expenses which is $62,000 added to the total included in engineering, casualty liability, omissions and contingencies, taxes during construction and loss of interest during construction, which is $582,699 added to the going value allowance of $583,000 added to the total net construction cost of paving specified amount of $330,558 gives a total of $1,558,257 which latter amount represents a little bit over 42.7 per cent of the total reproduction cost of the property.

Q. Wouldn't that be 43 and a fraction rather than 42?

1249 A. Not unless I am wrong here and I don't believe I am.

Q. I guess you have it right. Now you knew did you not that the contract that the gas company had or rather the arrangement that it had here with the city in the way of a charge or rate for gas expired on the first of last January did you?

A. I no doubt had that information, I have forgotten the date.

Q. You had known anyhow whether just then or when you got

it? Now have you made any allowance of any kind anywhere for any deduction from your values in this property because of the fact that the arrangement with the city expired on the first of the year and the gas company now was operating without any arrangement or agreement or franchise.

A. No, sir.

Q. You have made no deduction on that account? Would that make any difference with the value of the property?

A. If the company had to pay for its franchise then of course the franchise payment would be included as part of the capital account of the company. But I made no allowance for franchise value one way or the other.

Q. What I am getting at is this, would it be worth anything in your judgment and would it have any valuation in your theory of arriving at values, if this gas company, this complainant company in addition to having a property that has been enumerated and furnished to you for the basis of your valuation, if it had had a twenty year franchise to carry on its business?

A. No, sir.

Q. That would not add anything in your judgment to the value of this property?

A. It would not add to this particular property anything in my judgment.

1250 Q. Would the fact that there is no other gas company operating here in this town, does that cut any figure in your theory or in your valuation either way?

A. No, sir.

Q. So that the fact, if I understand you, the fact now that the city of Des Moines could grant if it wished tomorrow, a franchise to some other company to come in here and put in a gas plant would not effect in any way the value of this Des Moines Gas Company's property?

A. No, sir. Not so far as this calculation is concerned.

Q. Neither its tangible or intangible property?

A. No, sir.

Q. You have in your list relief holder No. 18 and holder No. 19, the relief holder No. 18 appears on page 84 of your report and storage holder No. 19 on page 85. Now what have you estimated to be the present value of tho-e two holders?

A. No. 18 and 19?

Q. Yes.

A. Total reproduction cost holder No. 18 $36,248. Holder No. 19, total reproduction cost $55,454.

Q. $91,682 that makes is that right?

A. $91,702.

Q. Now Mr. Lea, if it should turn out that these holders only cost this company new, $73,414, would that make any difference in your computation?

A. No, sir.

Q. These particular two holders as they stand down here have no fixed market value in the country anywhere?

A. They are not readily saleable, but they could probably be sold.

Q. That is not quite an answer to my question.

1251 A. Holders of that type certainly are in the market, regularly.

Q. And they have a fixed market value do they?

A. No.

Q. I mean as they stand down here?

A. No. None of these things have fixed values, they fluctuate.

Q. If it should turn out that this company themselves some ten or twelve years ago, longer ago than that, put a value upon these two holders of $73,000, would that fact make any difference?

A. Not the slightest.

Q. You really didn't need any help to get at these values except just to have the list of the property?

A. Practically all except local prices as to labor and material, building construction.

Q. Local prices didn't seem to cut any figure with you?

A. It did.

Q. Prices this company paid didn't?

A. I didn't take the company's word on things like that.

Q. You didn't even ask them?

A. No.

Q. You didn't think they would give it to you correctly.

Q. I thought they would try to, but I didn't suppose the records were in such shape they could give it correct.

Q. For expenditures made within two years?

A. Covering all of the items, it is not customary to keep books that way.

Q. Let me ask you another question, along that line. If you had known or upon inquiry from the company had ascertained that in 1895 Mr. Edward G. Cowdrey, Harry D. Walbridge, Charles R. Fabin, George Irwin Butterworth, Loren E. Chollen, George H. Harper, William Henry White, W. A. Steadman, Waton Clarke, and E. G. Pratt had all under oath valued this gas property at

1252 that time from $440,000 to $483,756.06 would that have made any difference to you?

A. No, sir.

Q. Would not have cut any figure at all?

A. Not at all.

Q. Would not have even given you the slightest basis for arriving at values under your method and theory.

A. Not any basis as valuable as I consider I have in my own records.

Q. You know most of these men I have named?

A. Know every one of them except Mr. Steadman.

Q. Mr. E. G. Pratt was at that time the manager of the company?

A. I believe so.

Q. Mr. Wilton Clarke is now some office- in the company isn't he?

A. He is an officer in the United Gas Improvement Company, I am not sure whether he is in the Des Moines Gas Company or not.

Q. Any way he is an officer in the United Gas Improvement Company.

A. Yes, sir.

Q. Is all the piping that is down here in the yards used in the manufacture of water gas?

A. The pipe itself is not technically used in the manufacture of gas used in the distribution of it or carrying of it around the plant.

Q. Is all that is down there used for that purpose?

A. Maybe some dead pipe down there somewhere, but I understand all pipe in the inventory is live pipe in use.

Q. Do you know that?

A. I have reason to believe it is used.

Q. Are you stating what somebody told you?

1253 Q. I didn't dig up the whole connections to see if they were all under pressure at this time, but did go into the figures to see if the total amount of works piped was a reasonable amount of pipe for a plant of that size.

Q. Did you see any evidence or indications of an old coal gas apparatus down there?

A. Yes, sir.

Q. Is any of this pipe connected up with that?

A. I don't believe there is any connection at all between the old coal gas benches and the present equipment. There is a hydraulic main on top of the benches and I think I can say very clearly that the iron work stops before the end of the brick work is reached and no pipe going through that I can remember.

Q. Did you go about the plant to make an examination of the connections yourself?

A. I didn't try to follow through each of the connections shown in the plans, except on the plans there I did.

Q. Did you of the pipes that are shown on the inventory?

A. The total amount of pipes shown on the inventory appears to me a reasonable amount of pipe?

Q. That is not what I asked you?

A. I have not dug up the pipe and measured.

Q. Would you have to dig up the pipe to find the connection?

A. You would have to dig up mo-e or less of it. It might leave a building in one place and you might think it entered in another but you would have to dig it up to make sure.

Q. All I want is to make sure whether you found any part of the pipe connected up with the old coal gas apparatus? You would not have to dig the pipe up to see if it was connected with

1254 the hydraulic main?

A. You could see it from the hydraulic main down to the ground, a matter of about fifteen feet. I presume that would be maybe ten inch pipe.

Q. You examined that far so you are able to say no part of this pipe is included in the inventory?

A. I don't believe there is pipe there, I may be mistaken about that I don't believe there is a pipe up there, but if there is it is about fifteen feet.

Q. What you want to say by that is there would not be to exceed fifteen feet of pipe.

A. Of pipe. I don't mean by pipe, the hydraulic main.

Q. You mean by that to say there is not to exceed fifteen feet of pipe attached to this old coal gas apparatus?

A. I mean to say I don't believe there is any dead pipe included in the inventory figures.

Q. I suppose you don't know definitely about that?

A. I do not.

Here the further hearing was adjourned until 9:30 a. m. tomorrow.

1255 Saturday Forenoon Session.

JULY 29, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

HENRY I. LEA, re-called for further cross examination, examined by Mr. Byers, testified as follows:

The MASTER: Will you give me the total reproduction cost of works equipment?

A. $510,179.

The MASTER: Now will you give me the net reconstruction cost?

A. It is in Exhibit E, $420,428.

The MASTER: Now add fifteen per cent to it?

A. To the $420,428?

The MASTER: Yes.

A. $483,492.

The MASTER: Now then what did you add to that for taxes?

Mr. BYERS: In per cent do you mean, Mr. Master?

The MASTER: Yes.

A. 1.496 per cent I add to that is taxes; the total $7,234 works equipment.

The MASTER: Whereabouts will I find the total?

A. The total of taxes?

The MASTER: Yes.

A. Works equipment begins on page 105 on the following page. There is the total net construction, plus engineering added for that year. Here is the corresponding figure for the next year. $2,229 added for the tax of 1912; $4,305 added for 1913; making
1256 a total of $7,234 added for taxes during construction for the works equipment.

The MASTER: What do you make it?

A. $7,234.

The MASTER: Now, then add it together.

A. $7,234 to the net construction plus engineering—that makes $490,726.

The MASTER: Now, then, what do you add to that for interest?

A. Add to that the sum of $19,445.

The MASTER: Now, then, what do you get?

A. You get $510,179. There is a difference of $86 which is accounted for by the decimal point carried out. In my book I show $510,179.

The MASTER: Give me the total tax.

A. Total tax works equipment $7,234; total loss of interest $19,445.

The MASTER: I want you to do the same thing with the distribution system. I understood you yesterday—the reason I ask the question—that 2¼ per cent you add for taxes.

A. It is added but not added throughout the entire period. you want everything in the distribution system complete?

The MASTER: Yes, sir.

A. Turning to Exhibit E—total net construction cost, distribution cost $1,549,871. I have got added fifteen per cent to that first, $232,481. The total for taxes during construction is $48,950 and the total for loss of interest during construction is $131,725.

The MASTER: Can you give me the taxes?

A. Yes, do you want the percentage based on the net construction cost?

The MASTER: No, just as you made it, on the net construction cost with the fifteen per cent added.

1257 A. I will give you the percentage on that total. To the total net construction cost of distribution system complete, plus fifteen per cent, engineering, etc., I have added for taxes during construction 2.757 per cent. or a total of $48,950; a trifle over ¾ per cent.

The MASTER: How much did you add for interest in per cent.

A. To the net construction cost of the distribution system, plus fifteen per cent for engineering, plus tax of $48,950, I have added for loss of interest during construction 7.192 per cent or a total of $131,725.

The MASTER: Now if you multiply that by the average, what you call the composite average, what will it be?

A. If you multiply the total net construction cost of the distribution system, plus $232,481 engineering, etc., that is fifteen per cent, plus $48,950 for taxes during construction, plus $131,725 for loss of interest during construction, you will have that amount multiplied by the per cent condition shown in *in* the table, 88.23 for the distribution as a whole, which will give you the present value—that wouldn't work out in exact dollars.

The MASTER: What is that?

A. To make this work out in even dollars you would have each of the subdivisions, taking it the way it is indocated, taking the reproduction cost by the composite per cent shown gives for the present value $1,731,976.

The MASTER: Just about a thousand dollars difference?

A. Yes, that is due to the discrepancy I have referred to.

The MASTER: The same is true also of the works equipment?
A. Yes, sir.
The MASTER: And also of the buildings?
1258 A. Yes, sir.
The MASTER: I verified the buildings—I think you figured interest at 6.1 instead of 6.179?
A. I used the figure six per cent; I may have made an error that I don't know about.
Mr. BYERS: Mr. Lea, have you any of the data now, the figures I have asked you about in the last day or two and asked you to furnish?
A. No more than I have already furnished.
Q. Nothing except what you had here yesterday?
A. No.
Q. How soon can you get those figures for us and furnish the memoranda we have asked for?
A. I can't make any promise as to time; I don't know just how much time it will require.
Q. Some time next week?
A. Possibly.
Q. I wish, Mr. Lea, you would furnish them to *us* as early as you can. If you do not get it all at once, furnish what you do have as you make it up. Do you have a copy of your Taylorville report in your office?
A. Yes, sir.
Q. I wish you would let us have that too?
A. I cannot do that.
Q. Have you sent for a copy of your report made to Beatrice?
A. For you?
Q. Yes.
A. No.
Q. Will you get a copy of it?
1259 A. I will get it for myself and will produce it if the Master says so.

Mr. BYERS: We would like to have that for the purpose of further testing Mr. Lea's theory that he advances here in this court on values. It is important that we should have either his copy or use the one we have.
The MASTER: If you can, produce it; they want to see whether you proceed on the same theory.
Mr. BYERS: And then we want to compare his values generally along the line here.
The WITNESS: The only objection I have, I have no authority to produce these reports without the consent of the owner. I should be advised by the city of Beatrice if I am authorized to produce that report.
Mr. BYERS: I have here a letter from the Solicitor of Beatrice Nebraska, furnishing a copy of Mr. Lea's report with his statement of the manner in which it was made and Mr. Lea's employment.
The WITNESS: That does not satisfy me.
The WITNESS: I guess Beatrice won't object to furnishing it.

The WITNESS: I don't suppose they will.

The MASTER: Of course, if that is produced it is only fair if there is any difference that the witness have an opportunity to explain it.

Mr. GUERNSEY: I wish now, if your honor please, to suggest that the experts for the city send for all the reports, copies of the reports which they have made, so that when we come to their cross examination won't be delayed.

Mr. BYERS: We will promise you anything you want will be immediately forthcoming, if we have it; and there will be no objections either.

1260 Mr. GUERNSEY: I simply want to save time.

Q. Mr. Lea, I have on my notes here at the very beginning of your examination you stated that you proceeded to put a valuation upon this property, on the theory, or with the thought in your mind of fixing the value at which the property would be purchased by a contemplating buyer; that is right, isn't it?

A. That is right.

Q. And your whole theory and your entire report proceeds upon the theory you are working out the selling price or value of the property?

A. It does not. My report is based on the understanding that I am to determine as nearly as I can the fair present value of the property.

Q. As it could be sold or bought in Des Moines?

A. A value which would be considered fair by the buyer and seller.

Q. Now, Mr. Lea, if you proceed on that theory, what are the important elements—without going into details—what are the important elements of value attached to this property and which you considered in arriving at what would be a fair price for it to a purchaser in a general way?

A. The location, general characteristics of the city, prospective growth of the city, the present magnitude of the physical equipment, its present condition, present value of the business, the possibility of increase.

Q. Anything else?

A. There were a great number of other things.

Q. The more prominent ones are what?

A. Those are the more prominent ones.

Q. Did you take into consideration the original cost of construction?

A. No, sir.

1261 Q. Did you find out what that was?

A. No, sir.

Q. Did you take into consideration the amount expended in permanent improvements?

A. No, sir.

Q. Did you find out what that amount was?

A. I did not.

Q. Did you take into account the market value of the stock of of the Company?

A. No, sir.
Q. Did you try to ascertain that?
A. I know in a general way about what it was; it didn't interest me, I didn't use it.
Q. Did you consider the probability of the earning capacity of the property under the present ordinance?
A. No, I didn't consider the earning capacity in arriving at the value under the ordinance.
Q. Did you consider the amount of the operating expenses?
A. I did later on but not to arrive at a valuation.
Q. I mean leaving out valuations?
A. No, sir.
Q. The cost of the plant of the present company?
A. No, sir.
Q. You made no inquiry about it?
A. No, sir.
Q. And it is not involved in any way in your valuation?
A. It has nothing to do with the reproduction value of the property.
Q. The dividend earned in the past and paid to the stockholders, did you consider that?
A. No, sir.
Q. Did you make an effort to find out what amount had
1262 been earned and paid in the way of dividends to stockholders?
A. No, sir.
Q. Did you consider any surplus earnings of the company, if there were any that had been carried into the capital account?
A. No, sir.
Q. Did you make any inquiry to find out what they were?
A. No, sir.
Q. Now, in this going value would that be worth anything to a purchaser of this plant if he was not permitted to operate it in Des Moines?
A. You are asking whether the going value of a Gas Company in the City of Des Moines would be of value to a man and he couldn't operate it or get into touch with it in any way; I didn't consider that in any way.
Q. Will you answer it?
A. How can I answer a question like that?
Q. Would the Gas Company's present plant be worth any considerable sum to a contemplating purchaser if he were not permitted to operate it in the city?
A. The value would be there whether the particular individual could get to that value or not; the value is there.
Q. The plant would be worth just as much on your theory and in your judgment to a man who would not be permitted to operate it as it would be to a man who was allowed to operate it?
A. That is not what I said.
Q. Is that what you mean?
A. Certainly not.
Q. What would be the difference in the value?

A. I might want to own and operate this plant myself.
Q. Just answer the question.
A. That sort of a question you cant answer yes or no.
1263 Q. You understand, don't you, that before a gas company can use the streets and alleys of cities in Iowa and operate a gas plant they must have a franchise from the city, you understand that?
A. I understand they must have in order to begin operations.
Q. Don't you understand they must have in order to operate at all?
A. No, sir.
Q. That doesn't make any difference?
A. No, sir.
Q. You don't consider in this case here where the complainant owns a plant but without a franchise to operate it makes any difference with the value?
A. Not the slightest.
Q. Suppose you were making out a report, you are an engineer with a reputation and a member of an honorable profession, suppose you were making out a report to a bond company or a company that was about to invest its money in the securities of the Des Moines Gas Company, would you pay any attention to the fact that its franchise to operate in the city of Des Moines had expired?
A. That would depend altogether on the conditions I stated in connection with the property; I am valuing it as it is.
Q. Please answer the question. I want you to assume just what is in that question for the purpose of answering it. If you knew that the franchise under which the Des Moines Gas Company had been operating its business had expired and you were called upon by a company that was about to invest its money in the securities of the company, would the fact now that you knew that the franchise had expired be considered by you and reported to the bond company as affecting the value of eithe- plant or its securities?
A. I can repeat that last answer; that is all I can do.
1264 Mr. Byers: I submit I am entitled to an answer.
The Master: If you can make a better answer do so.
A. I have answered it absolutely—that would depend on the conditions surrounding the plant.
The Master: Would you give it any consideration?
A. Certainly if the franchise had expired at this time it does not in my opinion affect the value of the Des Moines Gas Company in the slightest degree.
Q. Take the Des Moines Gas plant just as it is, with the conditions with respect to the plant here just as it is and assume that on the first of January its franchise for operating in the city of Des Moines had expired, now in your judgment would a purchaser consider the want of a franchise and consider the value of the property less without a franchise?
A. Are you assuming the other conditions to be as they were in the city at that time?

Q. All other conditions that affect the plant?

A. Then the failure of the company to produce a franchise which at that time was alive would not have the slightest value.

Q. It wouldn't cut any figure?

A. No, sir; not in this case.

Q. And you have not given it any consideration in your report?

A. I certainly have.

Q. As affecting the value.

A. I have made the necessary inquiries to determine what effect it might have.

Q. Have you made any reduction because of the want of a franchise?

A. There is no occasion for it in this case.

Q. I say have you made any?

A. I have not

1265 Q. Now, just another question along that line. If the cost of reproducing the company's plant because of extreme depreciation of labor and material was not more than fifty to seventy-five per cent of its original cost to the company, would you still have adopted the reproduction theory in arriving at the value?

A. I would never assume a price peculiar to an abnormal period at any time in the placing of the value on a property out of fairness to all concerned. You have got to arrive as nearly as you can at a fair average figures, not abnormally high nor abnormally low.

Q. Then, as I understand you, if the cost of labor and material here in Des Moines, the kind of labor used by the Gas Company, had been fifty percent under what you found it, you would not have adopted it in the reproduction theory?

A. I wouldn't if this price were an abnormal price.

Q. Then what theory would you adopt?

A. Exactly what I did. I adopted the reproduction theory basis on what I considered fair, average prices over a period of years, neither abnormally high nor abnormally low.

Q. Then the prices of material and labor you have adopted are not present prices of material and labor in Des Moines?

A. They are what I considered the fair average prices that would be met in the period of construction considered here.

Q. So that then your report does not proceed on the theory and is not based upon the actual cost on the first day of January, 1911,

A. The labor and material such as makes up this gas plant in Des Moines, the actual cost of labor on the first of January 1911 is one of the items entering into my judgment as to what would be a fair average rate for labor of a given kind throughout the period of construction.

Q. Of how many years?

1266 A. As indicated by the chart.

Q. How many years do you say?

A. I think about four.

Q. Then in all that figuring you considered a four year period?

A. Whatever is shown by the chart.

Q. Will you call it four years for the purpose of illustration.

After you consider a period of three or four years whatever your report shows, to get at what would be, as you say, a reasonable and fair cost of labor and material, did you find that to be higher or lower than it was on the first day of January, 1910?

A. I don't remember.

Q. Is there any way anobody can tell from your report?

A. Not from my report.

Q. Did you try to ascertain the value of this property by capitalizing its earnings?

A. No, sir.

Q. Now, I haven't put that question before, have I.

A. No, it has not been asked before.

Q. Do you know and can you tell the Master now upon what amount the net earnings of the Des Moines Gas Company plant would pay six per cent?

A. No, sir.

Q. Why can't you?

A. Because I don't know the amount.

Q. Don't you know the amount of their earnings for the last year, net earnings?

A. No, sir.

Q. Don't you know the amount of their net earnings for 1909?

A. I don't carry any such figures in my mind.

Q. Do you have them anywhere?

A. I presume I have some of them.

1267 Q. You have the net earnings here with you for 1910?

A. No.

Q. Can they be found by an examination of your report?

A. No.

Q. No way that they can be figured out from your report?

A. Not from my report.

Q. Is there any way the gross earnings can be figured out from your report of the Company's business for 1910?

A. No, sir.

Q. For 1909?

A. No, sir.

Q. For 1908?

A. No year.

Q. What does this diagram with respect to gross revenues, operating expenses, what did you figure out from that; did you figure out the gross revenue of the company?

A. You can approximate it from the curves but you can't get the exact amounts because accurate readings is impossible on so small a scale.

Q. The scale is so small that it is impossible to get to a cent or dollar

A. You may look at it and see.

Q. You just give it to us approximately?

A. I can't tell approximately.

Q. You can't tell approximately, not from your sheet?

A. I wouldn't give you figures of that kind without giving them to you exactly.

Q. How many persons, Mr. Lea, had a part in the making up of this report Exhibit 20?

A. Well, I don't know how many men the Gas Company
1268 had to prepare the material they gave to me.

Q. Give me the number of people you know about?

A. There were four in my office; that is all I am positive about.

Q. How many of them were engineers?

A. Two besides myself.

Q. How many persons outside of your own office do you know had a hand in it?

A. I know a group of men were all more or less connected with it; I don't know what part each one did.

Q. I am asking for the number of persons?

A. I don't know how many.

Q. Well, how many do you now have in mind, of course there were more than you can remember.

A. There were eighteen on the inventory I have learned of; some of them I know; there were about I think seven or eight more I knew of directly connected with the preparation of the inventory.

Q. The eighteen persons you speak of had a hand in making the inventory but didn't do any work that appears in Exhibit 20?

A. They made the inventory from which my figures are taken.

Q. I am talking now of who actually had something to do with the making of this Exhibit 20 as it appears.

Q. Specify what you mean by something to do.

Q. Well, prepared any part of it or page in it?

A. Be more particular; what do you mean—who did the typewriting, who bound the book?

Q. Who did the actual work of making up that sheet?

A. The photographer in Chicago.

Q. Who did the actual work of making the original of which that is a copy?

1269 A. The draftsman in my office.

Q. Who furnished him the material?

A. I did.

Q. Anybody else?

A. Some of the material was furnished to me and the balance I worked out myself.

Q. Who furnished the other material to you?

A. The Gas Company furnished material showing abstracts from the records of the Company up to the end of the year 1910; the balance I worked out.

Q. Now limit the question to the persons who actually did some of the work in here—I don't mean just the typewriting—I mean the persons who either furnished the memoranda for the typewriter, or dictated it to the typewriter, limit it to the number of persons who exactly did some work of preparation—not the preliminary work of Exhibit 20.

A. There were four most of the time and five part of the time in my office.

Q. This work was all finally completed there at the office in Chicago?

A. Certainly.

Q. Did any of the engineers of the Des Moines Gas Company or any other gas company perform any part of the work?

A. No, sir not beyond the preliminary work. Every item I received from the Gas Company was in the nature of preliminary information necessary in arriving at the facts on which I based the valuation, and none of the valuation figures in any sense have been provided by anybody to me.

Q. I am not asking that at all; that is not what I am trying to find out. I am trying to find out from you, Mr. Lea, whether
1270 you yourself worked out all these details and furnished the material to your typewriters, or whether some of those other gentlemen furnished a part?

A. I personally furnished everything except the preparation or quantities of the material.

Q. Nobody had any hand in that?

A. Not in the making of the valuations and figures, no sir.

Q. Now can you give us from your curve sheet—I think you said you couldn't—you can approximate the gross revenue for any year?

A. I could approximate it in the sense you use it. I don't want to give you any figures representing results on so small a scale because you will hold me to it later.

Q. I won't hold you to it. Just take page 96 here and confine your answer now to the curved sheet itself without regard to whether it shows exactly; I want to know if you can tell me, for instance, what your curved sheet shows the gross revenue for 1909 to be, worked out on this sheet?

A. You will find the gross revenue line crossing the 1909 line between $475,000; and $500, that is as close as I can give it.

Q. Between $400,000 and what?

A. Between $475,000 and $500,000.

Q. Now give it for 1910?

A. That is between $500,000 and $550,000.

The MASTER: About $530,000?

A. That is as close as you can read it.

Q. And the operating expenses for the same year are worked out on the sheet?

A. The operating expenses are shown up to 1910 and don't include depreciation; that is something over $350,000.

Q. What is it for 1909?

1271 A. Somewhere between $300,000 and $350,000.

Q. Now, that under this sheet includes taxes but not depreciation?

A. Yes, it includes taxes but not depreciation up to the year 1910.

Q. Now, with the depreciation taken out as you are working it out on this sheet, the difference between the amounts you gibe me there as to the revenues and operating expenses would be the profits of the business?

A. Certainly not.

Q. Well, plus depreciation?

A. Certainly not.

Q. Well, what else would there be in there?

A. I understand there are some bonds outstanding; I don't know what amount; bond interest is obviously net profit.

Q. There may be something else involved here; there is nothing here to show anything about bonds that are out?

A. No.

Q. Then let us put it in another way; that is, the difference then, would show the profits the bonded interest plus depreciation?

A. You have got to put it different.

Q. You put it in your own way.

The MASTER: The depreciation is what he wants to know about.

Q. What I want to get at Mr. Witness, is what the difference between those two lines would represent in your judgment?

A. The differences between the gross revenue and operating expenses, you mean?

Q. As you have it worked out here up to 1910.

A. Why the difference between the gross revenue and operating expenses as shown here would indicate only that an incomplete statement has been made.

1272 Q. All right, we will let it stand at that. The gross revenue in your scheme on record here was a fundamental factor in your calculation of the going value?

A. It was one of the factors, no more fundamental than a great many others.

Q. It was a factor?

A. It was a factor.

Q. Now if the difference between these two lines had been much less than appears there would that have any effect on your going value?

A. Certainly.

Q. In what way?

A. Other things being as they are a narrowing of the difference between the gross revenue and the total operating expense would tend to reduce the amount of going value.

Q. So that the difference worked out on your curved sheet here, say the difference between your curved sheet and the actual situation of the gas plant would be $50,000. How much less would that make your going value?

A. Make your question explicit; I can't answer it the way you asked it.

Q. Well you show a margin on this curved sheet you just worked out between two lines, one marked gross revenue and the other marked operating expenses, including taxes, but not depreciation?

A. Yes, sir.

Q. You worked out an amount there in figures, haven't you, for me of about $175,000 difference in the figures, as you stated?

A. I didn't state $175,000.

Q. But the difference was about that between the figures you did give me?

1273 A. I don't know what the difference is.

Mr. GUERNSEY: For which year?

Mr. BYERS: Take 1910, Mr. Lea, and tell the Master what the difference would be worked out on this curved sheet between the gross revenue actual, and the operating expenses actual, including taxes, but not depreciation.

A. As near as I can read the chart the difference between the gross revenue for 1910 and the operating expenses including taxes but not depreciation is $175,000.

Q. Now, then, suppose instead of showing that amount the curved sheet had shown $50,000 less, now what per cent of reduction would that have made on your so-called going value?

A. It would have made a small reduction in the percentage; I can't say how much.

Q. About approximately, how much?

A. I can't say.

Q. Give us your best judgment?

A. I haven't any judgment.

Q. No judgment about it—all right, we will let it stand at that. Now, to give you an opportunity to express a judgment, if you have any, suppose it was a hundred thousand dollars less, what per cent of reduction would that work out on your so-called going value scheme that you worked out?

A. I can't say without calculating.

Q. Can't you approximately?

A. No, sir.

Q. Can't you give us some idea?

A. No, sir.

Q. Would it be large or small?

A. I can't say whether it would without figuring.

1274 Q. Would it be half?

A. I can't say without figuring.

Q. Would it reduce it seventy-five per cent?

A. I can't say without figuring it.

Q. All right. If the assumed gross revenue for the next seven years were ten per cent or ten cents per thousand feet less than you assume, how would that affect your going value?

A. I can't say without figuring that either because there are a lot of other things involved.

Q. Would it affect it at all?

A. It might affect it either way; it might run it up or down.

Q. Will you figure that up for us in connection with showing the prospective growth from 1910 to 1918?

A. I will if I have time.

Q. We will ask you to do that before we close the cross examination. Well, isn't it true that the higher the price charged for gas the more the going value of your plant?

A. As a general proposition it is not so.

Q. Is it so here?

A. It is not.

Q. What would be approximately the effect on your going value

if the prices were raised to $1.10—I mean now worked out here on your Exhibit 20?

A. It might increase the going value and it might decrease it.

Q. You don't know?

A. No, sir; and nobody else does.

Q. There is no way you could figure it out from your report?

A. No, not from this report. It can't be figured.

Q. But there is no way you can figure it out from your report?

A. No.

1275 Q. Is the same thing true as to ninety cents?

A. Certainly.

Q. If the plant owned by the Gas Company including all of its services and meters could be instantly duplicated on January 1, 1911, and if everything then owned by the gas consumers in the way of gas appliances in Des Moines remained in place as they were at that time, on the first of January, in the present city, and its existing practical acquaintance, that is, the city's acquaintance and people's acquaintance with the use of gas in the city, there would be no going value, would there?

A. As compared with what?

Q. If the Des Moines Gas plant could be duplicated instantly on the first day of January, 1911, and all other conditions with respect to gas consumers was just the same on the first day of January, 1911, as it was when you looked over the field, the connections and appliances and education, all that was just the same, there wouldn't be any going value, would there?

A. Are you asserting that you are going to put in a second plant complete in all particulars, an exact duplicate of the existing plant in the existing town, put it into service immediately, and the existing plant dissolves or disappears?

Q. (Last question repeated.)

A. You are assuming this business is not connected up?

A. No, I am assuming just what I say there, the whole thing is just as it was when we found it on the first day of January, 1911, connected up and the plant could be reproduced instantly, would there be any going value?

A. You are in a realm of speculation. I am not prepared and I won't say. I am only considering those things which are humanely possible.

1276 Q. Is your hypothetical town humanly possible as you worked it out?

A. I am not reproducing a hypothetical town. The thing I am reproducing in my hypothetical calculation here is certainly humanly possible.

Q. Do you want further time to figure this out?

A. I don't want to figure it at all. I can't figure on anything not humanly possible.

Q. That is all the answer you want to make?

A. Yes, sir.

Q. Is it humanly possible, Mr. Witness, for every house, take twenty thousand houses of a town, to be all piped for gas and no connections?

A. Certainly.
Q. And no fixtures?
A. Certainly.
Q. That is the theory you figured on, it is humanly possible?
A. Of course.
Q. When you were making your valuation for the Peoples Gas Light Company in Chicago for hostile interests that you referred to, did you have full access to the manufacturing plants of the company?
A. Yes, sir.
Q. What work of valuation did you have or do at Buffalo?
A. None on valuation.
Q. What did you do?
A. I made a lot of calculations in connection with their engineer to determine economies that could be effected in the cost of *of* manufacturing and distributing gas in the city of Buffalo and the work was done by the city of Buffalo.
1277 Q. Not any valuation at all?
A. No, except as the equiment would be effected by the changes that would be involved.
Q. Who paid you for your work?
A. The city of Buffalo.
Q. Do you remember the amount?
A. No, and if I did, I wouldn't tell you.
Q. Did you estimate the going value at all?
A. Why, no; I didn't appraise the property of the company.
Q. You didn't furnish any report at all that in any manner worked out values there, going value or any other kind?
A. No, sir; I had nothing whatever to do with the valuation of the property as a whole.
Q. At Taylorville, did you value the property as a whole?
A. Yes.
Q. I have forgotten when you told me you did that.
A. I have forgotten too.
Q. About when was it?
A. I don't know, sometime this year.
Q. Was it since February?
A. I don't know.
Q. Since March?
A. I don't know.
Q. Was it before February?
A. I don't know.
Q. When did you furnish the Des Moines Gas Company with Exhibit 20 or a copy of it?
A. I don't know the date.
Q. About when?
A. It was, I should judge, about two months ago.
1278 Q. That would be some time in May or June?
A. Some time in June probably.
Q. Early in June?
A. I think so.

Q. Did you furnish your report at Taylorville before that?
A. I don't remember.
Q. Was it before the first of January last?
A. I don't remember.
Q. You told us yesterday, Mr. Lea, that you used a three per cent sinking fund for a part of the plant in all cases of fifty years life; did you use that per cent?
A. I did.
Q. That is true all the way through wherever the life is fifty years, you use three per cent?
A. If that is the figure I gave you yesterday.
Q. For a part of the plant having, as I remember it, twenty years life, you used three and one-fourth per cent?
A. Whatever I gave you yesterday was correct.
Q. Did you usethat per cent for all parts of the plant of that age?
A. Yes.
Q. Now, what other percentages were used, if any, other than the three per cent?
A. There were several others; there are different percentages for each different length of life.
Q. Well, give us the other if you can without too much trouble.
A. What year do you want?
Q. You have already given fifty and twenty—where is your table?
A. You can't find my table; it is my personal property.
Q. Use your personal property for a few minutes, if you will, and give us the figures.
1279 A. What length of life?
Q. The years that you have used.
A. I have used a good many.
Q. Well, give us all of them.
A. The first life I have is fifty years and that is three per cent; the next is thirty years, three and one-fourth per cent; the next is forty years, and that is three per cent; the next is twenty years and that is three and one-half per cent; the next is sixteen years and that is between three and one-fourth and three and one-half—I would have to look up my records; the next is twenty-five years at three and one-half per cent; the next is fifteen years at three and three-fourth- per cent; the next is ten years at four per cent; next is forty years at three per cent; the next is thirty-five years at three and one-fourth per cent; next is seventy-five years at two and three-fourth- per cent; the next is sixty years at two and three-fourth- per cent. That is all, I think.
Q. Now, Mr. Lea, to ascertain those percentages you had to get some private record you have of your own?
A. Yes.
Q. Why did you use those different percentages, just explain that, please?
A. Because I believe as you increase the life you will decrease the net interest which you will find it possible to realize.
Q. And that is the reason you have made the difference in the rates as to life?

A. Exactly.

Q. Now, this sinking fund as you worked it out here is based on a fair rate of interest upon a safe security, is that the thought?

1280 A. It is based on a fair rate of interest and on creditable security.

Q. Now, if that were true, why did you use as low a rate as three per cent?

A. Because men who know about those things tell me that is the right figure to use.

Q. They told you that was about the right figure?

A. Yes, they explained why.

Q. That is the reason you used it?

A. Certainly no other reason. I haven't any judgment of my own as to financial matters of that kind.

Q. Now I wish you would take any case out of your report there, take any typical case and illustrate for us just how you got at your investment age.

A. You mean the composite age of the investment interest?

Q. You understand it, that could be worked out from your report?

A. I said from some method as shown in my report.

Q. We have had difficulty in trying to get head or tail to it, and I wish you would take any one case that would be an illustration for the Master, or the rest of us, and figure it out for us on an investment basis?

A. Any one case of what?

Q. You don't know what I am trying to get at?

A. No.

Q. For instance, in your report you have meters and you have set out—you give some of it on page 12—average age meters 7.70 years. Just tell us how you figured that out?

A. That is figured by compiling first a record—as I explained yesterday—of the total number of meters in use at the end of a given year and the total number of meters installed during each year back as far as the record will go and multiplying the meters

1281 installed in a given year by the number of years in service, you will find for each of the years the total meter years; add the total of meter years, or rather by adding the meter years for each year you arrive at a total number of meter years, which divided by the total number of meters installed at the time of the making of the calculation will give you the composite age or installation basis.

Q. Just notice the question?

A. I am answering it. To arrive at this same figure on the investment basis instead of using only the number of meters installed during the year you split it up into the meters of each size or use instead the average size of meters and multiply by the unit for that type of meter installed, and you will have instead of the total meter year total meter dollars.

Q. How does that give you total meter dollars?

A. The same as this gives total meter years.

Q. Where do you get your dollars to support that?

A. You get your dollars, knowing what it would cost to install

the meter at a given time which would be the total dollar year I should say.

Q. To get that, to figure out this 7.70 down here, we would have to have some other figures and information than what appears here?

A. You would have to have enough knowledge of the business to apply the correct units.

Q. We would have to know the cost of the units.

A. If you have a knowledge of the business you have those units.

Q. You would have to have that before these figures can be arrived at.

A. These figures are not arrived at by men not familiar with the business.

Q. It is your business now, as I understand it, to help us.

1282 Do you have anywhere these dollar meters years or dollar years as you worked it out to make this 7.70?

A. I may have it.

Q. You did have it at one time?

A. I believe I did; I think I have it now.

Q. Who worked out those figures here?

A. Which figures?

Q. The last line on page 5.

A. That is a copy from the summary of these details coming from the company.

Q. Who made the detauls?

A. Some one in the employ of the gas company.

Q. Was this 7.70 furnished to you as a part of the details?

A. Yes, after I had verified the calculation——

Q. That is the answer now—we are satisfied with it. Suppose now, Mr. Lea, you had only the following facts, taken merely as an illustration of your method; how would you proceed to get an investment age, say five thousand meters on connections which first had meters thirty years ago——

A. How many meters thirty years ago?

Q. Five thousand. Listen to the question. Five thousand meters on connection- which first had meters thirty years ago——

A. I don't get the drift of that.

Q. Five thousand meters which first had meters twenty years ago——

A. I don't know of any meters having meters.

Q. Five thousand meters on connection- which first had meters five years ago?

A. You will have to ask it again; I can't understand that at all.

Q. Is there too many meters or too much time?

A. There is too much ambiguity.

1283 Q. Well, let us reduce it a little—suppose you only had the following facts, taken merely as an illustration now of your method; how would you proceed to get the investment age of five thousand meters on connections which first had meters thirty years ago—five thousand meters on connections which first had meters twenty years ago?

A. I understand that.

Q. Is that the only answer you want to give?
A. That is all.
Q. Take page 12 of your report and take everything opposite the year- 1890 and 1887 and assume now those are the only lines on that page and work out the average age on an investment basis for us?
A. It is a very simple thing to do; it takes a lot of time.
Q. Well, do it—if it takes too long do it some other time and hand it in to us later.

Mr. BYERS: That is as far as I can proceed with this witness until these other matters are figured out and the memorandas and papers asked for are produced. There is another question or two I want to ask.

Q. In making up your report, did you work out specials on the percentage basis?
A. By the percentage basis.
Q. Not by actual count?
A. No, not by actual count.
Q. What per cent did you use to arrive at it?
A. Four and one-half per cent for the pipe.
Q. Four and one-half per cent of what?
A. Of the net cost of the iron pipe itself.
Q. That includes all these so-called seal pots that have been referred to?
1284 A. All crosses, T's, Y's, L's and drip pots. I think there were some few valves that were listed separately. It certainly does not cover valves. It only covers cast iron connection other than iron valves, including drip pots; no, unless the drip pot is on the side line, the line drip itself is not included as a special; all drips are treated separately as drips and not specials.
Q. You exclude from your specials what make up the four and one-half per cent of line drips and pipes leading to it?
A. Wrought iron pipes, yes.
A. And all valves are excluded?
Q. Yes, that is because the number of valves required vary at a wide range in different cities and you can't use any definite figure. You couldn't take any corresponding percentage for drips or valves.
Mr. GUERNSEY: You were asked if you were excluding line drips.
A. I have not included them at four and one-half per cent.
Mr. GUERNSEY: What pipes lead to line drips?
A. No pipes lead to the line drips; we have a wrought iron line running over to the side drips.
Mr. BYERS: Now, Mr. Lea, you said something about wrought iron pipe in your report and your report refers to wrought iron pipe in many places; do you just assume that was wrought iron pipe or is it in fact wrought iron pipe?
A. As a matter of fact we do not buy wrought iron pipe, we buy wrought pipe. We all understand we are not buying real wrought iron; everybody understands that, unless we specify particularly wrought iron; wrought pipe is the trade name for that style of pipe.

Q. Wherever that item appears in your report, does it
1285 mean wrought iron?

A. It means what I said, W. I. is the symbol used and that means wrought pipe. It used to be all wrought iron years ago and finally the dealers found they could make a steel pipe and slip it in on the gas companies, until now, we all understand it is not a wrought iron pipe.

Q. Then, as a matter of fact, wherever that term appears it does not mean wrought iron, but just steel?

A. It means wrought steel.

Q. It is cheaper than wrought iron?

A. Per foot.

Q. And don't last so long?

A. In some places it does; as a rule it does not last as long as wrought iron pipe.

Redirect examination by Mr. GUERNSEY:

Q. You just referred to a per cent of specials; what is your basis for that four and one-half per cent that you took.

—. I have made a number of calculations in different towns where I have done work, laying street mains, and I have seen corresponding figures from other men who have done work of that character, which all go to show that a fair allowance for the extra cost of specials would be four and one-half per cent of the cost of the pipe itself. That does not cover any additional charge on the pipe.

Q. That is what you call net construction?

A. It is often less than that. If the cost of the pipe per foot is thirty cents, I will add four and one-half per cent for specials.

1286 Q. That is the figure that has been developed by practice in your profession?

A. It does not mean four and one-half per cent of the total cost of pipe laying by any means.

Q. Is that pipe with the freight added?

A. That is just the net cost per foot of pipe. If pipe costs you thirty dollars a ton, four and one-half cents a pound, your cost per special would be four and one-half per cent of that.

The MASTER: In Des Moines?

A. If the prices were not different.

The MASTER: Do you include freight?

A. No, just the cost of the pipe without the freight or labor or paving, and work required in paying pipe.

Mr. GUERNSEY: One other thing, before I forget it, you were asked some questions based upon the assumption that the company here has no franchise—which is an assumption which arises in the imagination of counsel,—but I suppose we might as well go into it. Now, just assume, if you will, that the company on the first day of January, 1911, had absolutely no franchise whatever. It had this plant here which it had been operating up to that time, and that it was negotiating with the city for a new franchise and in that connection the question of rates arose and you were asked as an expert

to determine the value of that property in view of those negotiations, would that have any effect on your valuation in the slightest degree?

A. Not in the slightest.

Q. You testified, I believe, a little while ago that all the information contained on page 12 of your report Exhibit 20, which is the page headed average meters, installation basis, was furnished to you by some one connected with the complainant?

1287 A. Yes, sir.

Q. And that includes the computation at the bottom of the page?

A. Yes, sir.

Q. You mean this is practically a copy of what is given to you?

A. Yes, sir.

Q. I wish you would tell the Master what steps you took to verify it before making use of it?

A. I saw some of the detail records from which the basic material was taken and checked over enough of it to satisfy myself and to know it was honestly and accurately made. I did not check every figure. I satisfied myself it was correct, it was made on a correct basis and by men who had the data with which to make it and they were making it honestly.

Q. Another thing: you were asked if while you were making the examination of the property of the Gas Company in Chicago for what you designated as a hostile interest you were allowed access to the plant or plants of that company, and you said yes. Now I wish you would tell the Master whether before you requested that access you disclosed the fact that you were representing hostile interests to that gas company?

A. I certainly did.

Q. Now, with reference to these line drips and apparatus, is that under your distribution system in your inventory?

A. Yes, sir, in Exhibit I.

Q. That is on page 92. Turning to that page, tell us whether the drip pots as well as the valves were inventoried separately and not included in the estimate of percentage on specials.

A. All the drip pots and valves in the distribution system were separately itemized and were not included in any sense in the four and one-half per cent I have added to the weight of cast iron

1288 pipe in arriving at the allowance for specials.

Q. Now, you were asked if from your report the going value on the basis of a ninety cent rate for gas could be ascertained, and whether it could be ascertained on the basis of $1.10 rate, and you said it could not.

A. I said it could not be determined from my report but it could be determined on exactly the same method.

Q. What was the rate of the going plant at?

A. One dollar.

Q. If you had calculated the going value in your report on a ninety cent basis, would it have been accurate?

A. Certainly not.

Q. Or on a $1.10 basis?
A. Not.
Q. You were assumed to make an estimate of the going value in the city of Des Moines?
A. Yes, sir.
Q. Your report did not show what the distribution system of the Kalamazoo plant would cost?
A. No.
Q. It don't show anything except what you attempted to get at as the present value of this plant at that time under the actual conditions?
A. That is all it shows.

Mr. BYERS: Mr. reporter, will you please mark this exhibit of tabulated figures.
(Paper marked Defendants' Exhibit No. 7.)
By agreement of parties the witness is to make a correct duplicate of the same in typewriting.

At this time an adjournment was taken until July 31, 1911, at 9:30 a. m.

1289 Monday Forenoon Session.

JULY 31, 1911—at 9:30 a. m.

Counsel for the respective parties all present.
Testimony on part of Complainant resumed as follows:

HENRY I. LEA, re-called for further direct examination, examined by Mr. Guernsey, testified as follows:

Q. Mr. Lea, what are some of the things incuded in this percentage, on account of engineering, for instance?
A. The study of available sites for a gas plant within the city of Des Moines; the making of accurate maps of such real estate as is finally selected, of determining elevations of the various portions of such real estate; the making of the detailed plans and specifications covering all of the equipment at the works and in the distribution system; the comparing of the bids and specifications submitted by various contractors; the recommendation to the company as to which bid to accept, or the actual placing of contracts by the engineers; the supervision of the various stages of construction up to the final completion and the approval of the final payment on each of the individual contracts.
The MASTER: It is the ordinary work of engineering and the architect?
A. Yes, sir.
The MASTER: Including the supervision and superintendence of the construction?
A. Yes, sir.
Q. You were asked on your cross examination something about

contractor's profit. On what parts of the plant did you figure
1290 contractor's profit?

A. On only such portions as the company would ordinarily do by the contractor method, and that would be restricted to the plant and works equipment, the machinery and buildings in the plant itself; the street work being in nearly every case performed by the company itself.

Q. By the plant you mean manufacturing plant?

A. Yes, sir. Now there might in a case like this, there might be river crossings let to a contractor in occasional instances, but ordinarily that would also be done by the company; but the building of gas holders, putting up buildings for gas making and purifying machinery, meters, etc., of the plant would be done under the contract system by concerns specially adapted to that kind of work.

Q. Do these contractors expect a profit?

A. Their profit is in the price I call net construction cost.

Q. They anticipate and insist at least a prospective profit?

A. Yes, they do.

Q. On your cross examination you were asked several questions questions in connection with the matter of going value as to how your ultimate result would be affected say by a reduction of fifty thousand dollars in the gross revenue, or things like that. I wish you would state to the Master whether you could ascertain what effect that would have without making a computation through all these details?

A. No, sir; you can't.

Q. Two or three or several questions were asked you based upon the hypothesis that the present plant might be instantly duplicated; is this physically possible?

A. It is not.

1291 *Q.* The MASTER: What is the use asking that question.

Mr. GUERNSEY: I don't think there is any more use in it than there was in asking a question on that hypothesis.

The MASTER: That does not differ the question altogether in my judgment; of course, I am not expressing an opinion.

Q. Now, then, you were also asked a number of questions based upon the possibility of relaying the mains when streets happen to be unpaved; are these two hypotheses consistent?

Objected to on part of defendants as being incompetent.

A. No, they are not consistent. While it would be possible to relay some mains at the proper time coincident with the opening of the existing paving for replacing, it would just as naturally follow that a large part of the mains now without paving would at that time be covered with comparatively new paving and that a large part of the paving now existing would have been replaced and would be in such condition that it would not warrant the city in tearing it up for this purpose.

Q. If the plant were instantly replaced, would it be possible to wait for the streets to be torn up for repaving?

A. No, certainly it is safe to say if you were to wait until the city opened streets for repaving that cost would be very much in excess of what I have allowed in my estimate.

Q. On your cross examination you referred to a year's gross income as having been taken as a sort of an arbitrary measure of going value in the gas business?

A. Yes.

Q. Now what is the fact about that—this is, has that been accepted as a sort of an arbitrary test?

A. It has been accepted by a number of experienced men as an approximation of the going value.

1292 Q. And what about the thirty dollars per meter?

A. That is another method which has been used frequently.

Q. In the same way?

A. In the same way and for the same purpose.

Q. I think that referring to the third plat or chart which is in your report, Exhibit 20, you tell us that the gross revenue as shown there on page 96 was something over $525,000 for the year 1910?

A. Yes.

Q. So that would have run something under your computation of going value in your report if that rule had been adopted?

A. If I had adopted one year going value, I would have a value lower than shown.

Q. Now, suppose you had adopted thirty dollars per meter?

A. I would have a going value somewhat higher than I have shown.

Q. During a part of your cross examination General Byers used the expression gas appliances, referring to piping, and you used it in another sense; in what sense did you use it?

A. I used the term gas appliance to cover only such devices as actually consume gas, like lighting fixtures, mantels and lamps on the fixtures, water heaters, gas ranges, flat iron heaters or flat irons containing gas burners fed by a rubber tube leading to them, appliances actually consuming gas, not piping leading to them.

Q. You said several times on your cross examination that your method of computing going value would not work unless certain factors were ascertained; what do you mean by work?

A. Wouldn't show correct results.

The MASTER: In other words, you have got to have a correct basis?

1293 A. Yes, sir; you have got to assume conditions humanly possible and in proper sequence; such sequences as you actually find in practice in order to arrive at an accurate and dependable result.

Q. In this same connection I think in answer to some question on cross examination you assented to the use of the word speculative as describing the projections upon these charts as to conditions after the end of 1910. In what sense do you use this word speculative or assent *of* its use?

A. As applying to figures made or estimates made which are projected into the future, something which you can say is in the future because it has not yet come into being; you assume such and such results will be reached, and to my mind that is speculative.

Q. Something that is a matter of judgment as distinguished from something that has happened?

A. Yes, sir; something that applies to the future.

Q. Why is it that the gas appliances to which you refer are sold by the companies and are not sold generally like other merchandise?

A. Because the purpose of the company is primarily to increase its sales, and to that end it must get as many appliances in use as possible, from which it follows that they must be sold as low as possible. The gas company therefore has no motive except to sell at cost, and the selling of such appliances at cost is the uniform practice throughout the entire country.

Q. You referred to the 6 foot 6 sets as something you would not put into a new plant if you were building one. What is the fact as to whether the condition that exists here, taking this as an illustration of it is the condition found in every gas plant that has
1294 been developed in a growing city.

Objected to on part of defendants as being immaterial.

A. I believe my statement was that I would not if I were today building the plant of the present total capacity of the Des Moines Gas plant install 6 foot 6 units; but it certainly is a fact that this plant has gone through the period when this was the proper size to install. It was more economical in the conduct of the business to install the 6 foot 6 units, later the 8 foot 6 units and then still later install the 10 foot 6 units as the plant grew in capacity——

Q. That is not just the question I am asking. I asked you whether this is a condition that you find in the gas plants that have developed in a growing community.

A. It certainly is.

Q. Now, then, when the 8 foot 6 sets were put in, of course additional 8 foot 6 sets could have been installed for the reserve capacity instead of 6 foot 6; and when the 10 foot 6 sets were put in of course additional 10 foot 6 sets could have been put in instead of using the 6 foot 6 and the 8 foot 6 sets that the company had?

A. Yes, sir.

Q. If that had been done, how would it have effected the situation from the standpoint of economy?

A. There would have been unnecessary investments with a corresponding unnecessary interest charge.

Q. How about the depreciation?

A. The maintenance charges and depreciation charges would have been unnecessarily increased.

Q. So that *what* is the reason that has induced not only this plant but gas plants generally to adopt the course that has been followed here.

1295 A. The reason is that each company is planning on making its gas at the lowest cost per thousand feet.

Q. It is a question of economy?

A. Yes.

Q. You said in your cross examination that so far as the matter had come under your observation the books of the companies did not show correctly the cost of construction—I do not refer to this company but I refer to gas companies in general—and I think you gave that as one reason why you did not go to the books of this company for these costs. I wish you would explain that statement, state why that is true in your judgment.

A. Well, the company ordinarily keeps its accounts in such a way that they show the total amount of money expended for construction throughout the year and they can in most cases show from that total amount the proportion that has been charged to a given piece of construction, but they do not keep those accounts so that all the elements entering into a specific piece of equipment show that piece of equipment throughout the books; you would have to go through the books and segregate a lot of items. We know from experience about what proportion that will work out and these are the proportions I have used rather than dig them out of the company's books.

Redirect examination closed.

Mr. BYERS: We will not take up further cross examination until the information the witness is to produce is at hand.

Excused.

1296 WILLIAM A. BAEHR, being first duly sworn, on part of complainant, examined in chief by N. T. Guernsey, Esq., testified as follows:

Q. Please give the reporter your name, age, place of residence and occupation?

A. My name is William A. Baehr; age, thirty-seven; residence is Chicago; my occupation *os* consulting engineer.

Q. You say you are a consulting engineer. Have you specialized as to any particular matter in your consulting engineering, and if so, what?

A. My principal work is in gas engineering.

Q. Now, I wish you would state what experience you have had, stating it in detail, in connection with the construction, manufacture and operation of gas plants, and what special technical study you have taken for the purpose of preparing yourself for this professional work?

A. If there are no objections I might read what I have formulated on paper here regarding my experience; if there are no objections——

Mr. BYERS: That will be all right; we have no objection to that at all.

A. Witness reads memoranda as follows: In 1894 I graduated from the civil Engineering course at the University of Wisconsin at Madison, Wisconsin. During my college course, I did some work surveying for the City Engineer of Oshkosh, Wisconsin, during one

summer vacation. After graduation I was employed in the Bridge and Building Department of the Wisconsin Central Railway, now the Soo Line, doing office work. Subsequently, I did some real estate surveying in the suburbs of Chicago in charge of the
1297 field work. In the spring of 1895 I became a draftsman at the Edgemoor Bridge Works near Wilmington, Delaware. In the fall of 1895 I went to the Wisconsin Bridge and Iron Company at Milwaukee, Wisconsin, where I was employed as a draftsman on structural work, remaining there until the early part of 1897. In March 1897, I became Superintendent of Distribution for the Milwaukee Gas Light Company, which position I held for about one and one half years. During this time I had charge of main and service work for this Company. Subsequently, I was employed in general engineering at the Gas Works of the Milwaukee Gas Light Company doing general designing, and also designed and superintended the construction of the foundation for a three million cubic feet gas holder at the new plant of this Company in Milwaukee. This new holder was located on marshy ground, necessitating a study of the soil, the making of borings and piling work. In June 1899, I went to Denver, Colorado, as Superintendent of the Gas Department of the Denver Gas and Electric Company. While in this position I had charge of the operation and extension of the Gas Plant in Denver, including charge of coal, water gas and Pintsch Gas plants, and the distribution systems. During the time I was at Denver I made an examination and engineering report for prospective purchasers of the Gas Plants at Leadville, Boulder and Greeley, Colorado. During this time also, and during the year 1902, I made the drawings and specifications for remodeling the Gas Plant at Pueblo, Colorado, including the construction of the new water gas plant. During 1902, also, I was employed on engineering work in connection with the proposed improvements of the gas works at St. Paul, Minnesota. In March, 1903, I went to St. Louis, Missouri, as engineer of the Laclede Gas Light Company,
1298 which supplies all the gas for that city. In this capacity I had charge of the coal, water and Pintsch Gas plants and gas distribution systems, together with the electric plant and distribution systems of The Laclede Gas Light Company. I was in St. Louis for about six years and during this time was in charge of the designing and constructing the improvements to the plants and distribution systems of that Company, aggregating an expenditure of about seven million dollars. Among the work thus designed and carried out was the construction of a four million cubic foot gas holder; additions to the water gas plant of an approximate capacity of ten million cubic feet per day, together with the necessary apparatus and machinery; the designing and construction of a high and low pressure gas distribution system, including the designing and construction of about five hundred miles of gas mains and approximately sixty thousand new service and meter installations. During this time I designed and also had charge of the construction of a large Pintsch Gas Plant at St. Louis, capable of supplying gas, and actually doing so during the World's Fair in 1904, to more

than one thousand railroad passenger cars per day, together with a new distribution system for the same; also the improvements of the electric plant and distribution system were in my charge during this period. During the time I was engineer of The Laclede Gas Light Company, one hundred eighty acres of ground were purchased and I designed the general plans for a combined coke oven, coal gas and water gas plant to a total capacity of about one hundred million cubic feet per day. During the time I was in St. Louis
I made reports as Consulting Engineer for prospective pur-
1299 chasers of various gas and electric properties. Among the
gas properties were the following: Ardmore, I. T. 1905; East St. Louis, Illinois, 1905; St. Charles, Missouri, 1906; Little Rock, Arkansas, 1906; Collinsville, Illinois, 1907; Gas Plant Improvements, Toledo, Ohio, 1907; Hamilton, Ohio, 1907—employed by City—Hannibal, Missouri, 1908; Granite City, Illinois, 1907-1910.

Among the combined gas and electric properties were the following: Belleville, Illinois, 1905; Western United Gas & Electric Company Properties, namely, Elgin, La Grange, Aurora, Joliet, and twenty or more smaller places. La Crosse, Wisconsin, 1906, Street Railway also; Louisiana, Missouri, 1906; Nevada, Missouri, 1907—Water and Street Railway also; Cape Girardeau, Missouri, 1908,—Water also; In addition to these I made complete investigations and reports on the problem of supplying natural gas to St. Louis from the Kansas and Oklahoma gas fields, which involved a considerable amount of investigation and research work. I also designed and made complete specifications for a new coal and water gas plant at Beloit, Wisconsin, and a new electric plant at the same place. I also designed and furnished plans and specifications of the new electric plant and distribution system of the Merchants Power Company of Memphis, Tennessee. I also designed and partially built a complete gas plant, electric plant and distribution system at Davenport, Iowa. In April 1909, I left St. Louis and opened an office as consulting engineer in Chicago. Since then I have been employed as the regular Consulting Engineer of the Oshkosh Gas Light Company, embracing the designing and construction of all improvements of the gas and electric supply at Oshkosh, Wisconsin, as well as being in general charge of the operation of their
plants. I have been employed in the same capacity by the
1300 Beloit Water, Gas & Electric Company of Beloit, Wisconsin,
and also by the Greeley Gas & Fuel Company of Greeley, Colorado. Since entering into the consulting field I have made reports on various gas and electric properties, among others as follows: Anderson, Indiana, 1909, designing new plant and purchasing holders; Atlantic City, New Jersey, 1909; Lansing, Michigan, 1909; Litchfield, Illinois, 1909; Wilmington, Delaware, 1909; Amarillo, Texas, 1909-1910, water also; Galena, Illinois, 1910; Helena, Arkansas, 1910; Poplar Bluffs, Missouri, 1910; Waterloo, Iowa, 1910; Dayton, Ohio, 1910, natural gas also. I have also been employed as expert engineer by the Minneapolis Gas Light Company in the matter of service regulation. In the spring of 1910, I

was employed by the Southern California Edison Company (electric) to design and report on all improvements required for the coming five years in the plants and distributing systems of the eight gas companies owned and operated by that Company in Southern California at that time. I am making a detailed appraisal of the property of the Peoples Gas Light & Coke Company of Chicago, being employed on this work, the total value of their property aggregating many millions of dollars. I was also employed by the city of Wheeling, West Virginia, to investigate the conditions and design improvements for the gas plant and distribution system which is owned by the Municipality of Wheeling. At the present time I am employed by the Public Service Commission for the First District of New York City to investigate and report on the gas pressure conditions in New York City and to make recommendations required to give New York City first class pressure service. Recently, 1911, I have been further employed by the City of
1301 Wheeling, West Virginia, to build their new gas plant and rehabilitate their distribution system, as per my report made to them in 1910. Also very recently, 1911, I have been employed by the City of Buffalo, New York, to investigate and report upon the operating conditions and expenses of the Buffalo Gas Company, supplying the artificial gas to that city, with a view towards determining what economics, if any, could be effected by the installation of labor saving machinery. I have just finished an employment by the Kings County Lighting Company of Brooklyn, New York, on a rate regulation case before the Public Service Commission for the First District of New York. I am at present engaged in making a complete valuation and determination of both gas and electric light and power rates in Oshkosh, Wisconsin, being retained for that purpose by the Oshkosh Gas Light Company.

Q. Up to 1909, when you opened your office in Chicago, you had what to do in connection with the operation of these plants you have spoken of?

A. I was in actual charge of the operation as well as construction and designing.

Q. What do you mean by saying actual charge, were you manager of the plants?

Mr. Byers: It seems that paper fully qualifies the witness.

Q. What I want to get at in a general way is the nature of the duties which you performed in operating these plants, so as to indicate what knowledge you have as to the actual operating.

A. I think I can probably answer that question best by stating that at Denver I was superintendent of the gas department, and I went to the gas plant and the other places where it was my duty to visit each day, and at the gas plant I investigated each opera-
1302 tion each day, looked over the results for the preceding day and directed such changes as were necessary to make in my judgment, to improve results, if that could be done. When I went to St. Louis, that being a considerably larger city, it was impossible for me to visit each gas plant each day, but I made it a point to

visit all the plants of the Company several times a month, and each day I conferred with all the superintendents of the different plants as to the operation, and went over the results of the preceding day and determined personally the changes that were requisite in the future operations to secure further economy, of that were possible.

Q. Now, have you made a valuation of the property of the Des Moines Gas Company, the complainant, in the city of Des Moines, consisting of its manufacturing and distributing plants in the city used for the purpose of furnishing gas?

A. I have.

Q. When did you first come to Des Moines?

A. I came to Des Moines first about the first of January 1911.

Q. Was that the first time that you had received any information, or at least any observation as to this plant?

A. It was.

Q. Now, then, tell us what you have done, how much time you spent in Des Moines, and what you did in the way of examining this particular plant?

A. My first visit to Des Moines, was about January 1st, and at that time I was here two days only, being very busy and being required to leave on other work on the evening of the second day. During these two days I made an inspection of the gas plant by going through each building and noting all the apparatus, and subsequently made a tour of the city, driving to the outskirts in
1303 several directions and being advised generally of the extent of the distribution system. At that time I made an approximate determination of the valuation of this property. Subsequently I came to Des Moines, I think some time during February—I prefer to refresh my memory on that particular point because I have a note as to when I came—I find I was here three days in the early part of February, from the 6th to the 8th inclusive, and again in Des Moines on February 26th to March 9th inclusive. At these subsequent visits I went into the question of the inspection of the plants more thoroughly and made determinations of the cost of doing the work and the cost of materials in Des Moines, and made a very careful check of a copy of an inventory of the property of this company, which was handed to me by the company.

Q. Now, let me interrupt you a moment—this copy of the inventory is a copy of Exhibits 15 and 16?

A. I believe it is a copy of those exhibits.

Q. Except as to inaccuracies Mr. Lea called attention to amounting to about fourteen dollars?

A. Yes, sir.

Q. Now, then, go on and state what you did in the way of checking the accuracy of this inventory yourself?

A. With one of my assistants I went into each building and measured each building and measured the thickness of the walls and the *the* sizes of windows and door openings; measured the height of the walls of some of the buildings only, but I took enough measurement to satisfy myself of the substantial accuracy of the inventory in regard to the buildings. In regard to the apparatus I went over

the list of the apparatus as noted in the inventory and checked
1304 each piece of important apparatus personally and noted that the size and description of the same corresponded with that furnished in the inventory. That is about all the checking I did.

Q. Did you do anything in the way of checking up the distribution system, if so, what?

A. I did nothing in the way of checking up the distribution system accepting the inventory of the company as correct in that particular.

Q. What was the result of this checking of the buildings and apparatus?

A. I found that the measurements were correct as set forth in the inventory, and that the apparatus as listed therein was actually at the Gas plant of the Des Moines Gas Company, and that the description, size, name, manufacturer etc., corresponded to the description, etc., in the inventory.

Q. Please state whether or not you proceeded to make a valuation of the property of this complainant company in the city of Des Moines, used and useful in its business of manufacturing and distribuiting gas there?

A. I did.

Q. Have you copies of your report?

A. Yes, sir. (Witness produces copies.)

Q. I wish you would state whether the report marked complainant's Exhibit 21, is your estimate of the cost of reproducing this plant?

A. It is.

Q. Now turning to page one, which immediately follows the index, you have first here some explanatory matter, part of it you have already covered; what do you mean by the statement unit costs were fixed to each item covering cost of material and wages?

1305 A. By unit cost I mean the cost of a unit quantity of material usually in place. For instance, concrete is usually estimated at so much per cubic yard, and I determine what would be a fair price per cubic yard of concrete, in place, in Des Moines.

Q. As of the date of this appraisement?

A. As of the date of this appraisement.

Q. Was that followed out, for instance, with reference to brick and lumber and various other things involved of that character?

A. Yes, that same system was carried throughout the brick work, excavation, roofing, hauling, all of the usual features that are incident and a part of the construction work of this kind.

Q. Now, stopping here for a moment, Mr. Baehr, I wish you would tell the Master whether this method of obtaining unit prices figured at, what you call a basic cost, and then add those various other items, is the method usually adopted both by engineers and contractors in estimating costs of work?

A. It is.

Q. What did you do with reference to laying out the work and determining what part of it would be done in each year and why did you do this.

A. The date of this valuation was assumed as of January 1st, 1911. I estimated that on this date some mind would conceive the idea of supplying Des Moines with a gas plant; I did this in order to logically reproduce this property. The necessary steps to go through to reproduce a property and business of this kind from its inception to a completed state, were assumed about as follows: To start with, during the first six months of the history of this construction, it is assumed that a preliminary investigation would be made, to look over the city of Des Moines as a field for gas for a gas
1306 company, which would be followed by an engineering investigation to determine the advisability of constructing a gas plant in this place and developing the gas business here. The first six months would be consumed by work of securing the franchise, the necessary time and effort consumed in arranging and financing of an enterprise of this kind, the determination of a proper site and optioning of real estate, naturally the service of an attorney at law would have to be arranged for, and the spirit or mind conducting this enterprise would lay out an organization to handle it, not only the construction work but to carry on the office end of the business. Now I estimated that it would fairly require six months to carry out that portion of the work. I further estimated, thereupon that about the first of July 1911, in other words, six months after the date of valuation that the real estate would be purchased, that the business and engineering departments would be organized as rapidly as possible; that an office would be rented and the various heads of departments would begin to arrive and that the organization would begin to assume form. Also that the general legal and financial organization would be completed during the last six months. Now as soon as the engineering department is organized, it would proceed to undertake the usual and customary work of an engineering department of that kind, would undertake, such as an investigation of the real estate, the laying out of the plant, making detailed plans, securing prices of purchase, etc. This work of engineering is figured and estimated not to be completed in the six months, but to continue throughout the construction period to a more or less extent, as required to carry on that work. Then I estimated that actual work would begin about the first of January, 1912;
1307 in other words, about one year after the inception of the enterprise. I figure this is a fair period to allow for the necessary work to be undertaken preliminary to actual construction. Thereupon the rate of construction is estimated to be carried on with a view toward the utmost economy. If you would consider a man investing his money in an enterprise of that kind, he would naturally be desirous of completing his construction and getting into operation and securing a return at as early a date as possible and keeping in mind the reasonable amount of work that can be done economically and fairly, I have estimated the rate of work as contained in this report.

Q. Now, on page one, I think you referred to this rate of work under a division; how you got at it by dividing the work into districts?

A. Yes; the distribution system is a very expensive feature of

work of this kind and it requires careful study to lay out the amount of work that should be done in a given length of time in order that that work may be economically and reasonably possible. I assumed and estimated that it would be reasonable and fair to carry out the amount of the distribution work in Des Moines in three years, and there being about 180 miles of main, all told, I estimated that it would be reasonable to figure to lay approximately one-third of that amount of mains each year. For that reason I divided the city into three districts, and these districts are so divided that the amount of work in each is approximately the same—the mains in each district and services in each district and the rate of installation of meters are given in this report; but approximately one district is completed per year, with the exception of the meters, which
1308 are not fully installed in each district in the year mentioned, but the rate of installation of meters is shown in the table in this report. These districts correspond with the districts shown on the map in one of the earlier exhibits submitted by you—I have forgotten the exhibit number.

Q. That is in Exhibit 16, plate #33. Are these districts indicated on the plate which has been referred to in Exhibit 16 as plate #33?

A. Yes, sir.

Q. How are the first, second and third indicated?

A. The first district is marked one, the second is marked two, and the third district is marked three.

Q. You refer to beginning work in 1912; there is a reference here on page four to river crossings?

A. The river pipes would have to be laid—I understand during the winter months the water is low and I understand that you can estimate that during the winter months you always find the water low to do this character of work to the best advantage—for that reason I estimate that the river piping work would be begun in the winter of 1911 and 1912.

Q. And what have you estimated the rate of expenditure each year, whether it is uniform or not?

A. During each year, I estimated the rate of expenditure would follow a straight line, from the beginning to the end of each year, and that is practically true.

Q. What do you mean by following a straight line; we don't know, we don't think by lines?

A. I mean that the expenditure in the last half of the year would be practically the same as the expenditure the first half of
1309 the year and for that matter that the rate of expenditure each month would practically follow the same kind of a curve if plotted on a sheet of paper; by curve in this instance I mean a straight line.

Q. When did you estimate the plant would be completed?

A. I estimated that the entire physical equipment, that is the plant and the distribution system would be completed and in operation on and after January 1, 1915.

Q. And when would you first begin to supply gas?

A. I estimated we would first begin to supply gas on January 1, 1913.

Q. Now, Mr. Baehr, what do they call this method of valuing a plant?

A. It is called the reproduction method.

Q. Why have you adopted it?

A. I have adopted this method because in my opinion it affords the best test upon which I can base my judgment of the value of this property.

Q. And what is the fact as to whether it is a standard method and used by engineers generally?

Objected to on part of defendants as being incompetent and not a matter of expert testimony.

A. It is a method which is in general use.

Q. On what basis have you figured the taxes?

A. I ascertained that the tax rate in 1910 was ninety mills on one dollar on twenty-five per cent of a full valuation. I changed that rate, or reduced it rather to the rate on a full valuation, which is equivalent to a rate which is two and one-fourth per cent per year on a full valuation, and that is the figure I used.

Q. Now, turning to page 5 of your report, we will take up
1310 these overhead matters first in the order you have them; what do you mean by items of additional cost?

A. By items of additional cost I mean those portions of the cost of carrying on an enterprise of this kind over and above the cost of material and wages entering into the actual construction.

Q. Then the material and wages are not the only items of cost that enter into the actual construction?

A. They are not.

Q. You take up the first here, what?

A. I first take up what I call item #1, contingencies.

Q. You have the words on base only; who do they mean?

A. The cost of material and wages I call in this report a base figure. Now, contingencies I apply to the base figures only, contingencies being estimated as a percentage.

Q. By saying you apply to the base figure only, you mean you apply them before you add taxes and things of that kind?

A. Yes.

Q. What per cent do you add on account of these contingencies?

A. I apply contingencies only to certain portions of the property; that is, the construction work; there is no contingency on real estate; meaning by that the gas works, on mains and services and on meters in use I apply contingencies at ten per cent on the base figure for those parts only; on meters not in stock, no contingencies.

Q. The plant as you used the word in this Exhibit 21 means the manufacturing plant then?

A. Yes.

Q. Not the entire property of the company?

A. No, not the entire property.

1311 Q. Now, please state whether or not on page 7, you explain in detail some of the items that are included in this matter of contingencies?

A. I do.
Q. And it is under that head?
A. Yes.
Q. Now what have you allowed on account of contingencies?
A. In dollars?
Q. No, per cent.
A. Ten per cent on the plant, meaning gas works, mains and services and meters in use, using the base figure.
Q. Why do you adopt ten per cent?
A. Because ten per cent is the result of my experience in doing construction work of this kind. I have found in the number of years I have handled construction work and been in charge of construction work of this kind, that there were always items of cost entering into the final cost which were not foreseen at the time the work was originally planned and estimated. These contingencies as I call them, varied in amount, in some cases running as low as ten per cent, in other- they run very high; but from the experience I have had and being in actual charge of this construction, I estimate that ten per cent is a conservative and fair figure to use in this case.
The MASTER: Is this per cent estimated upon the entire cost of the meter or on the laying of it?
A. That per cent is estimated on the cost of the meter in place; that is, base figures only.
The MASTER: I mean the cost of the meter and the cost of placing?
1312 A. Yes, sir.
The MASTER: And in the same way with the mains?
A. The same way with the mains.
The MASTER: And the same way with the plant?
A. Yes, sir.
The MASTER: That ten per cent goes under cost of construction and the cost of material both?
A. It goes upon the cost of material and wages entering into the cost of any portion of the plant, or the whole of it, and the mains, services and meters in use.
Q. Now, turn to page 7. What are some of the things you take into account here that are covered by this ten per cent?
A. In the first place, that ten per cent covers among other things, omissions. In a case like the one under consideration omissions are not as serious as in cases where the inventory would be made with less care and less completeness. In this instance the inventory has been made with great care and with great completeness and the omissions are not as serious here as might be the case elsewhere. But there are bound to be omissions and I have covered omissions, whatever they are, under this item of contingencies. I might instance that by stating that in Chicago, where a very careful inventory of the property of the Peoples Gas Light & Coke Company was made, I subsequently checked the inventory and personally found some omissions, even with the great care they had used, and for that reason and because of my experience in this matter I feel

that a certain allowance for omissions must be made and is fair to make. Now, under contingencies I also cover the item of temporary work. In building a plant of the size of the one in Des
1313 Moines, or even plants that are much smaller, there is always a certain amount of temporary work which disappears after the completion of the plant, and that work therefore is not found in an inventory which is made subsequently to the completion of a plant. Yet that work has cost money, and it is only fair that an allowance for it be made. I might instance that by giving one experience we had in building a four million cubic foot holder at St. Louis. After the work was practically completed and the holder was ready to test, it was necessary to erect a temporary building and put in an electric moter and blower, run in wires and run a pipe and pump air into that holder for the purpose of testing it. When the holder was completed that was taken out and disappeared, and if an inventory of that property were made today, no trace of that work would be found. For that reason it is proper to allow something for temporary work. Now, the next item that I have included in contingencies is the item of piece-meal construction. Piece-meal construction is very high for certain portions of the work, and again in other portions of the work it is not so high. When you consider a plant like the gas plant of the Des Moines Gas Company, you will realize at once that this plant has been built up a portion at a time, and it always costs more money to build a plant a portion at a time than it would cost to rebuild that plant in its entirety at one time as one large construction undertaking. Now, if you consider the subject of mains in a gas plant—mains in a gas plant are extended to some extent by piece-meal construction. You may have a house which is only fifty or seventy-five feet beyond the end of the mains and you come and apply for gas and the company is obliged to undertake the construction of a main extension of
1314 only fifty or seventy-five feet in length, has to go to some extra expense over and above what it would be obliged to go to if it laid the entire main system in one large construction undertaking. From my experience and in my judgment it is fair to allow something in plants of this kind for piece-meal construction. Now the other features that enter into contingencies are such features as are enumerated on page 7 there, which I may state are changes in construction made necessary by encountering unfor-seen obstacles during the progress of the work—rise in prices of labor or materials above normal, financial panics; financial panics may result in extreme difficulty in getting money to carry on the work; the work might even be stopped; this would result in an increased construction cost. Inclement weather is a source of considerable contingency; then there are other causes, such as floods causing both delays and actual property loss; failure of contractors, special unfor-seen difficulties, deep excavations, strikes, and as I have stated here in general, all those costs, experience has shown, must be provided for by prudent men engaging in large construction enterprises, over and above those which can be specifically enumerated.

Q. Now, your next item, additional cost on page 5 is what?

A. That is item #2, called engineering and superintendence, and

that is figured on base plus number one, which means it is figured on the base figure, namely, cost of material and wages, plus contingencies.

Q. What does this include? Is that detailed, commencing near the bottom of page 7?

A. Yes, at the bottom of the page there.

Q. State generally what you cover by that?

1315 A. Generally, salaries, wages of engineers, superintendents employed on the work, the preparation of detailed plans and specifications, receiving bids, preparation for letting contracts, purchase of material, supervision of work, the adjustment of contracts, final tests of machinery to see that it fulfills the specifications and requirements of the contract, investigation of real estate, determination of proper location of plant, etc.

Q. How much have you allowed on account of this item?

A. On real estate I have allowed 1.5 per cent; on plant, meaning gas works, mains and services and meters in use, I have allowed five per cent.

Q. What on meters in stock?

A. On meters in stock nothing.

Q. Now I wish you would state whether this is a fair and reasonable allowance on this account of this item of cost?

A. In my judgment this amount is a very fair amount to allow, and there are many instances where engineering work goes at a higher percentage then I have taken. I think this is fair in this instance.

Q. Now your next item is what?

A. Number three, legal organization, liability for casualty and fire insurance. I have lumped those items under one head of number three. They are figured on base only.

Q. Have you stated in a general way the latter half of page eight, what is included here?

A. I have, beginning with the words investigation expenses.

Q. Now on page 9, what do you do?

A. In order to determine a fair and reasonable percentage for this item #3, I made an estimate as shown on page 9 of the

1316 items that would enter into this item of legal expense and organization, and that is found detailed on page 9. The percentage which I finally adopted is considerably less than the detail shown on page 9, because I wanted to be conservative and fair in this item.

Q. Now, your estimate of what this item would actually amount to went to what?

A. The item #3 I estimated would run $116,776.

Q. What did you actually allow in making your estimate of the reconstruction cost on account of this item?

A. I actually took a percentage which amounted to $90,444.

Q. About $26,500 less than the actual cost as you figured it?

A. Yes, sir.

Q. Now, what is the fourth item of additional cost?

A. The fourth item of additional cost is taxes during construction, which is figured on the base, plus items numbers 1, 2 and 3.

Q. Why do you figure it on the base plus items number 1, 2 and 3?

A. That is plus contingencies, engineering, organization and legal expenses, because those items number 1, 2 and 3 are a portion of the work of construction just as much as the physical material entering into the same; and the taxes I figured on the full valuation.

Q. Now, on page 6, is there some detailed statement of what you have given us about the computation of taxes?

A. Yes.

Q. And this is also explained on the first half of page 10?

A. That is also explained on the upper part of page 10.

Q. Now, what is your next of these items of additional cost?

A. Number 5, which I have called interest during construction. This interest added to the capital account is figured on base
1317 also number 1, 2, 3 and 4, meaning by this the items of the table shown on page 5.

Q. That is figured on the actual expenditures?

A. Yes.

The MASTER: Taxes on prior year, however, is so included; what do you mean by that?

A. I figure that the taxes are levied one year and paid the next. I have included the tax levied each year in the same year as accruing on that same year; but in the particular year under consideration I have not figured taxes.

The MASTER: Don't you mean following there instead of prior?

A. No, I mean prior, because if you assume, for instance, the tax of 1912 in the interest calculation for the year 1912, I have not figured interest on the taxes accruing in that year, but I have figured interest on the taxes for the year prior, 1911.

Q. Turn to page 10—is this explained in the latter half of that page?

A. Yes, beginning with interest during construction.

Q. What is your next of those additional items?

A. The next item is #6, working capital.

Q. Where do we find that, explain it?

A. It begins on the bottom of page 10.

Q. In a general way what does it include?

A. In a general way that includes material, supplies in stock, and a fair amount of cash to carry on the operation of the business.

Q. You stated at the bottom of page 10 how you arrived at that?

A. Yes, sir.

Q. Now what is the next of your additional items?

1318 A. The next item #7 is going value.

Q. Have you stated in a general way on pages 12, 13, 14, 15, and part of 16 how you compute that?

A. These pages simply comprise some general consideration leading up to going value. They do not explain in detail the method I finally based my judgment of going value upon.

Q. We pass that, at least for the present, until we get to that subject. Now what have you set out on page 17 of Exhibit 21?

A. Page 17 shows a summary of the reproduction new and present or depreciated values of the property of the Des Moines Gas Company, together with an estimate of the average condition per cent of the physical property.

Q. Now, turning to pages 18, 19 and 20, there is a single page so marked?

A. Yes.

Q. What have you set out on that page?

A. On the page marked 18, 19 and 20, I have set out the reproduction new value of the physical property and business, giving the reproduction new value of the base figures with items of additional cost and the total.

Q. And these items of additional cost here are lumped in the aggregate?

A. They are in this table.

Q. In the succeeding page, 21, please state whether this base cost is given and the amount of the items of additional cost separated into taxes, interest and items 1, 2 and 3, which cover I believe as shown on page 5, your contingencies, engineering, superintendence, legal organization, liability for casualty etc.

A. They do, on the basis of reproduction new.

1319 The MASTER: That omits the going value.

A. Yes, sir; that is just an analysis of the items of additional cost which are not applicable nor applied to working capital and going value.

Q. This page 20, as I understand you, is simply giving in more detail the totals of those items of additional cost which appear on pages marked 18, 19 and 20?

A. Yes, sir.

Q. Now, passing to page 22, that is what?

A. On page 22 is shown a schedule which I estimated to determine the amount of the investment going into operation each year. To explain that a little further, you will note there is no portion of the investment charged into operation during the years 1911 and 1912, for the reason that gas is not turned on until January 1, 1913. The construction work is not entirely finished on the date the gas is turned on, but certain portions of it are constantly being finished and as fast as they are finished it is fair that tax and interest chargeable to the capital account should cease. For that reason I have made a careful estimate of a portion of the investment going into operation each year.

The MASTER: On the first of January each year?

A. That is at the end of each year.

The MASTER: For the prior year?

A. Yes.

Q. For instance, you have 1913, that column would indicate the portion of the investment used in operation at the end of 1913?

A. No, during the year 1913.

Q. At the end of 1912?

A. Yes.

1320 Q. And 1914 in the next column is used in the same way?

A. Same way, yes sir.

Q. Now, what does the next page show, page 23?

A. Page 23 gives the portion of the investment in operation during each year in dollars on the basis of reproduction new, not including taxes and interest.

Q. Turning to page 27, what is that?

A. Page 27 gives the detail of the method of figuring taxes and interest which are chargeable to operating expenses only on the basis of reproduction new. That particular table refers to the expenditure of a portion of the table shown on page 24. In other words, the table on page 24 shows the computation of taxes and interest chargeable to the capital account, but that particular page, 24, does not show the portion of taxes and interest which go to operation. Page 27 explains one portion of these figures going to operating expenses.

Q. And stopping a minute at page 24, that gives what?

A. Page 24 is a summary showing the estimated expenditures by years on the basis of reproduction new. This table is made largely for the purpose of showing the amount of taxes and interest chargeable to the capital account. I have not taken the taxes and interest chargeable to the capital account item by item, but have based it on the summation of items as shown in this table.

Q. And do pages 25 and 26 as well as page 27 show the details with reference to computations which are contained in the summary on page 24?

A. They show the detail of the computation as relating to taxes and interest; show how each figure is derived.

1321 Q. I think we will turn, Mr. Baehr, to your cost of reproducing this property as you have it in detail; that is your base figures.

A. Page 72 is the summary.

Q. Now the first item you have there is your real estate?

A. Yes, sir.

Q. Now what did you take as your base value of real estate; what does that mean and where did you get your information?

A. The base figure on real estate which I took is $200,000. I made no investigation of the value of the real estate owned by the Des Moines Gas Company, but the Company informed me that some real estate experts in Des Moines had given them valuations of this real estate and that those valuations were somewhat in excess of $200,000. I took for my base figure as a result of that information the amount of $200,000 and at the time I investigated the number of square feet of real estate as shown in the inventory to be 196,358 and I find that at $200,000 base figure value of real estate this amount equals $1.02 per square foot; that value appeared to me to be reasonable and I have used it in my calculations.

Q. Turning now to page 72 again we have real estate base two hundred thousand dollars.

The MASTER: You don't consider this man an expert on real estate.

Mr. GUERNSEY: I was going on to have him explain the basis on which he had taken his figures.

The MASTER: The fact of the matter is I wouldn't consider the testimony of either one of them on the value at all.

Mr. GUERNSEY: That item goes into his total valuation and I wanted him to explain how it goes in.

1322 Q. Mr. Baehr, referring to this table on page 72, you have first base $200,000, then you have under the next column 1, 2 and 3, what does that mean?

A. The 1, 2 and 3 refers to item numbers detailed on page 5, one being contingencies, two being engineering and superintendence, and three being legal organization, etc. Now this amount of eleven thousand dollars is the one and one-half per cent for engineering and superintendence and the four per cent for legal organization, liability for casualty and fire insurance, but not any allowance for contingencies.

Q. That gives you the aggregate on account of real estate contained in your valuation as what?

A. $229,229.

Q. That is carried into a summary on page 126, is it?

A. That is shown on the top line of page 126.

Q. Now, then, going back to page 72, you have your next item there, plant, as what?

A. The base figure of plant $469,517. on the basis of reproduction new.

Q. The additions bring it up to what amount?

A. The additions on the same basis bring it up to $603,675.

Q. Now that plant includes the buildings, contents, outside apparatus, holders, tanks and sundry equipment?

A. Yes, sir.

Q. And the aggregate there of $469,517. which with the additions comes up to $603,675. on page 72 is distributed into these items I just mentioned on page 73?

A. It is.

Q. Now on page 74 and page 75 we have a large number of items which make up under the head, base $469,517. and under the total $603,675. I wish you would state whether these are *are* more in detail the items which go to make up the amounts sum-

1323 marized on page 73.

A. They do.

Q. Now, then, turning to page 74 you have first buildings?

A. Yes, sir.

Q. And they are all included together; I wish you would turn to page 76 and state whether there you give the base and the additions and total of the reproduction new value of each one of the buildings?

A. I do.

Q. For instance, I wish you would state what your estimate is of the base amount of the building known as #1-A and B purifying house.

A. The base figure on the basis of reproduction new is $9,501.

Q. What are the additional items to be added on account of items 1, 2 and 3?

A. Items number 1, 2 and 3 cover contingencies, engineering and superintendence, legal expense and organization, and amount to $1,853.

Q. The taxes?

A. The taxes are the proportion of taxes chargeable to the capital account; as proportioned to this building, amounting to $235.

Q. So that the total reproduction cost of this building is what?

A. $12,217.

The MASTER: Why can't we shorten this some way.

Mr. BYERS: I have no objection.

Mr. GUERNSEY: I was going to ask a general question now.

Q. I wish you would state whether on this page, 76, you have listed each one of those buildings and have shown your estimate of the base and the additions on account of these various items you have referred to, and the total reconstruction cost of that building, whether in your judgment those estimates are reasonable, fair and correct?

1324

A. The buildings shown on pages 76 and 77 and these figures in my judgment represent fair values of the buildings and in my judgment are correct.

Q. Taking these totals on page 77, I wish you would state whether they are carried into the summary on page 74?

A. The total buildings shown on page 77, rather the totals are shown as the top line of the table on page 74.

Q. And opposite the word what?

A. Opposite the word buildings.

The MASTER: They are not included on 72?

A. They are shown separately as the top line on page 73, but the table on page 72, the buildings are included under the heading plant.

The MASTER: As $603,675.

A. Yes, sir.

Q. Now, then, your next item here on page 74 is contents, building one, A. and B?

A. Yes, sir.

Q. Now turn to page 78, and I wish you would state whether that page shows the various items there referred to, the base cost and the additional items, and the total reproduction cost new in your judgment, shows it fairly and accurately.

A. It does and in my judgment is a fair figure and accurate.

Q. And then the figures shown on page 8 appear on page 74 opposite the classification contents of building 1-A and B.

1325

A. They do.

Q. They go into that summary there?

A. Yes, sir.

Q. Now the next is building 3; on page 74; I wish you would turn to page 78½ and state what that is?

A. Page 78½ and 79 together give the detail of the contents of building #3 on the basis of reproduction new, and the sum-

mation of those figures appears on page 74 opposite contents building #3.

The MASTER: That is the new plant?

A. That is on the basis of reproduction new, yes sir.

Q. Now take the next item on page 74, contents building #4, and state whether or not the details as to that item are set out on page 80?

A. Those are shown on page 80.

Q. And the totals as they appear on page 80 as to those items constituted those items on page 74?

A. Yes, sir.

Q. Now what is the fact as to page 81 showing in like manner your estimate of the value of contents of the building #5?

A. It does.

Q. And these totals are carried to page 74?

A. They are.

Q. Now turning to the next item, page 74, contents building 6-A and B please state whether or not page 82 shows details as to those items?

A. It does.

Q. And the totals as they appear on page 74 are taken from page 82?

A. They are.

Q. Now, the next item, page 74, is contents building 6-C.

1326 I wish you would state whether page 83 shows the details of your estimate as to the value of this item?

A. It does.

Q. And the sums of those details are carried to this item on page 74?

A. They are.

Q. Now the next item, page 74, is contents of building # 7?

A. Yes, sir.

Q. Please state whether page 84 shows the detail of this base $45,651 and also shows the details which make up the balance of these items, contents of building #7, page 84?

A. It does.

Q. Now referring to the remaining items which are shown on page- 74 and 75, making up the aggregate total of $603,675 with the items that have been referred to, I wish you would state whether the details of these items are shown on pages 85 to 112 inclusive of your report Exhibit 21?

A. Yes, sir.

Q. And this item $603,675 then goes from page 74 to page 73 and from there into your summary on page 72?

A. Yes, sir.

The MASTER: Mr. Byers, you have no objection to this general question?

Mr. BYERS: Absolutely none.

Q. Now referring to all of these pages, Mr. Baehr, will you please state whether each item as you have given it there, in your judg-

mnt is a fair and reasonable item based upon a fair and reasonable cost of reproducing the specific piece of property which it refers to?

A. It is.

1327 Q. Now, then, turning back again to page 72 your next item after real estate and plant is distribution?

A. Yes, sir.

Q. That shows base 1,551,202 and a total of 1,993,243?

A. Yes, sir.

Q. Now, I wish you would state whether there is a summary of the items making up these totals on page 113 of your report?

A. There is.

Q. And does this summary show as to the items classified generally there, as to each class, the base and additions on account of items which you have indicated, items 1, 2 and 3, and on account of taxes and interest and the total?

A. Yes, sir.

Q. Now, your first subhead here is street mains?

A. Yes, sir.

Q. Taking these various items and not stopping for that one, street mains, river pipe, paving over mains, street mains, valves and drips, steam and street railroad crossings, house services, lamp services, paving over services, meters in use, meters in stock and distribution, tools, I wish you would state whether pages 114 to 123 inclusive of your report show as to these items the details, showing the base and the additional items which you have mentioned, and the total.

A. They do.

Q. So that the totals contained upon page 113 are made up from the items which appear on the subsequent pages up to 123 inclusive?

A. That is right.

Q. And these together make up the total show- as distribution system on page 72?

A. Yes, sir.

Q. I wish you would state generally as to the items going into the distribution system, whether they show in your judgment the

1328 fair cost of reproduction new of this system and show fairly the actual value of the separate items going into it?

A. They do as of the date of this valuation.

Q. Now, the next item you have on page 72 is what?

A. The next item is marked general office and stable equipment.

Q. Will you turn now to page 124 and state to what extent you have itemized this item?

A. I have divided that among furniture and fixtures, book records, and stable equipment.

The MASTER: Is the outside apparatus included in the total?

A. That is included under the heading of plant.

Q. How do you place your valuation on these items and how do you get at it?

A. The item of furniture and fixtures is the equipment of furniture and fixtures at the general office of the company, and that base

figured $14,015, was arrived — by me as a fair figure to represent the value of that particular equipment on the basis of reproduction new from an inspection of an inventory of said furniture and fixtures furnished to me by the company together with a statement, meaning verbal statement, of the value of one or two of the principal items.

Q. How old were these furniture and fixtures?

A. They were very recent.

Q. Now how did you get at the next item?

A. The book records I have taken base figure on the basis of reproduction new, of ten thousand dollars which in my judgment is a fair and conservative estimate of the value on the basis of reproduction new on the date of this valuation of the book records owned by the Des Moines Gas Company. I did not include under
that heading drawings or portions of the works or maps of the
1329 distribution system, the value of which I included under
the heading of engineering and superintendence, but this particular item of ten thousand dollars base figure covers the other records of the company, such as for instance history cards and the general business records. I think the figure is conservative and fair.

Q. What is the final item on this page?

A. The final item is stable equipment.

Q. How did you get at that estimate, the value of that?

A. The base figure $11,359, is my estimate of a fair figure of the stable equipment derived from an inspection of the inventory of stable equipment made by the company and handed to me. I have based my value on the information concerning the principal items contained in the said equipment. It is not the result of a detailed estimate on each item.

Q. What do you say as to whether it is reasonable or accurate or not in excess of the total reproduction new value of this item?

Objected to on part of defendants as incompetent and immaterial.

A. In my judgment this amount is conservative and fair.

The MASTER: What are the book records?

A. We will take the one thing, history cards——

The MASTER: They are the books of account?

A. Yes, sir; the books of account and the records relating to the business of the company.

Q. Why would they be of any value to a new plant if this plant was reproduced?

A. They would be of the greatest value; they contain the records
of the transactions of the company, the names of consumers,
1330 the locations and what has happened at those consumers'
places, the various transactions in a business way. I consider them of great value. I think that figure is if anything low.

Q. And these items shown on this page, 124, are carried into the summary on page 72 under general office and stable equipment?

A. Yes, sir.

Q. Now, Mr. Baehr, this summary of the plant and summary of

the distribution system, which take up pages 74 to 124 inclusive, say nothing about depreciation?

A. No, sir.

Q. What method did you take to ascertain the per cent condition at present of this plant, do you refer to this on page 125 of Exhibit 21?

A. Yes, sir. The condition per cent or the present value of buildings and apparatus or physical property of any kind were determined by a personal inspection which I made, a very careful inspection of each item. In a general way the per cent condition of those portions of the equipment which are under ground, like mains and services and that portion of the equipment called meters, I did not see and I computed their per cent condition on the basis of the composite life and age of these items.

Q. Now, turning to page 126 and the following pages, over to page 137 which is included, will you please state whether or not these pages state the cost of reproduction new of these various items as we have already found them, and show in addition to that the condition per cent and the present or depreciated value of each one of those items?

A. They do; they refer to the visible property.

Q. It is the items we have not been referring to heretofore?

A. Yes, sir.

1331 Q. Will you turn to page 17 and state whether or not under the headings real estate, plant, buildings, contents of buildings, outside apparatus, holders, tanks and sundry equipment, general office and stable equipment and distribution system you have summarized these items which are found in pages 126 to 137 inclusive?

A. Omitting the distribution system which you mention, they do.

Q. Before I get to the distribution system—now the plant and buildings includes quite a number of items and they have various conditions per cent as shown in detail?

A. Yes, sir.

Q. How did you obtain 84.8 condition per cent which you apply on this item on page 17?

A. The cost of the reproduction of the plant and building is shown as $86,924. The present or depreciated value $73,741 is taken from page 127. The condition per cent on page 17 of the plant and buildings was obtained by dividing $73,741 by $86,924. I wish to explain right here that the condition per cent as shown on page 17 is only to the nearest decimal. As a matter of fact if the condition per cent is wanted accurately it would have to be carried on to a number of decimals. To illustrate that difference, 84.8 carried out is 84.834.

Q. That is, carrying out individual instances would have increased the condition per cent somewhat and would have increased the depreciated value?

A. No, $73,741, is derived from page 127; that is not changed at all and the condition per cent is only taken on one decimal.

Q. Now, this distribution system that appears here on page 17 is taken from page 113?

A. That is shown on page 113.

At this time an adjournment was taken until 1:30 P. M.

1332 1:30 P. M. MONDAY, *July* 31, 1911.

WILLIAM A. BAEHR continued on direct examination by N. T. Guernsey, Esq.

Q. I think Mr. Baehr that just before luncheon you had stated that the tables of the distribution system appearing on page 17 you took from pages 113 and the following pages showing details as to that matter?

A. Yes, sir.

Q. And what is the fact as to whether as to each item of detail these things shown with reference to the distribution system commence at page 113 and continuing to and including page 123 are correct and accurate in your judgment?

A. They are.

Q. I think I have asked you that once before but if I did it won't do any harm. Now then turning to page 63 taking that and the following pages down to and including page 71 I wish you would state whether they show what in your judgment is the condition per cent of the items making up the distribution system and also show your method of arriving at this conclusion.

A. They do.

Q. Now taking page 63 for a moment there is a formula at the bottom of that page. From what did you derive that formula?

A. That is the regular formula used in compound interest calculations.

Q. In getting your present values what rate of interest did you take?

A. In this case I took four per cent.

1333 Q. Now turning to page 64 you have there in the first line street mains 930,746, then times renewed in 58.1 years' life. Why did you take 58.1 years, explain that, the basis for that column?

A. 58.1 years is the composite life of the street mains and that figure 58.1 is derived as shown on page 66. You will notice on page 66 that the estimated life of the mains two and one half inches and under is taken at 20 years and that the estimated life of three inch mains is taken at 30 years and four inch mains at 50 years and the 6 inch mains and the larger mains than six inch at 75 years. Referring to the table on page 66 you will find that I have a column, times renewed in 75 years. That is the way to determine the true composite life of the mains. It is estimated that the larger mains are renewed only once in 75 years, but the four inch mains are estimated to be renewed every 50 years. That means that the 4 inch mains are renewed one and one half times as often as 6 inch and larger mains. Therefore in order to determine the true composite life it is necessary to multiply the first column which on page 66

is reproduction new value, by the times renewed in the longest life main shown in that table, namely 75, divided by the life assumed for each item and that gives the column headed total expenditures in 75 years. Then to determine the dollar years you multiply the next to the last column by the life and the sum total of the dollar years divided by the reproduction new value, by the total of the reproduction new value column—no, divided by the total expenditures in 75 years. Then to determine the dollar years you multiply the nex- to the last column by the life and the sum total of the dollar years divided by the reproduction new value, by the total of the reproduction new value column—no, divided by the total expenditures in seventy five years gives the true composite life of 58.1 years. Now referring back to the table on page 64, the same method of calculation is used and the reason that I am taking the times renewed in 58.1 years is because that happens to be
1334 the figure of the longest lived apparatus contemplated in this table.

Q. How did you treat paving over mains as compared with the paving itself in this?

A. I estimated the life of the paving over mains the same as the mains themselves.

Q. And why?

A. For the reason that when the mains finally had to be replaced the paving has to be replaced at the same time and the cost of that work comes at the same time that the cost of the pipe itself takes place.

Q. Getting down to where there is a substantial difference, say at house services, is there anything there to show the way in which you have computed your figures as to this item?

A. I have assumed house services to have the same age as meters. The determination of the composite age of meters is shown in the table on page 71. That table gives the calculation by which the composite age of meters is derived at reproduction new value. The only difference between meters and services being in the life. I have assumed the composite age of the services as the same as the composite age of the meter, but the life of the services I have assumed at twenty years whereas I have assumed the life of meters at twenty five years.

Q. Before I forget it, where did you obtain the data set out on page 71?

A. I was furnished with a list of the number of meters installed during each year beginning with 1887 and was also given a memorandum of the number of meters which were in use at that time. By means of this column which I have in ink notation in my book, but did not copy into the other reports, because I did not think it was necessary, I obtained the first column in that table called
1335 investments. The total of that column you will notice meaning now the column headed investment is $255,885. If you will not refer for a moment to page 121 you will find at the bottom of page 121 the last column gives the total cost of meters in use on the basis of reproduction now with a detai- of the additional

cost items and that total figure, $255,885 is the same total figure as shown *b*at the bottom of column headed investment on page 71. Now taking number of meters installed each year and using the average price per meter as derived from the total figure of $255,885 I compute that column headed investment. Now the second column, years in service I believe is self explanatory, it is just the number of years these meters have been in service and the third column is the product of column one and column two, calling column one the Investment column. Then the total of the investment years divided over the total $255,885 equals 8.23 which is my estimate of the average of the meters. I have also shown on the page the estimate of the average of the meters installed before 1886 and the ratio shown, 23 is to 6.8 as 22 is to X, that gives the figure of 6.5 years. In other words my estimate of the average of meters installed before 1886 in 1886 is 6.5 years and that continued to 1911 January 1, is 29.5 years as shown.

Q. You have a computation on page 67 which is headed determination of the average age of mains on the investment basis.

A. Yes, sir.

Q. Did you use that or if not for what purpose is it inserted.

A. That table is inserted to show my method of calculating the average of mains, and that was done using basis figures only. The investment in each year is detailed on page 68. The 1336 column on page 67 headed investment is derived from the last column on page 68 headed total. That total on page 68 shows the dollar value of mains laid each year. The dollar value of mains laid each year in turn is derived from the table on page 69 which shows feet of each size of main laid each year. Now go back to the table on page 67, the multiplication by the investment of the years in service *ives* the investment years as shown in the last column and the sum total of the investment years divided by the sum of the investment, in other words by $930,746, gives the average age of mains at 8.9 years.

Q. Turning to page 68 does this page show the amount of mains in the ground each year commencing with age 1864 to 1888 and then running down to and including 1910, all the mains laid each year?

A. The table on page 68 is the dollar value. The table on page 69 gives the number of feet.

Q. I will take the 69 table first. Does the table on page 69 show in feet the amount of mains of each size laid from 1864 to 1888 and then in 1888 and each year thereafter down to and including 1910?

A. It does.

Q. Where did you get that information?

A. That information was given to me on a memorandum handed to me by the company.

Q. So that you relied on the company for this information?

A. I did.

Q. And then page 68 is this reduced to dollars?

—. Yes, sir.

1337 Q. Now on page 70 you have what?

A. On page 70 I have a table showing a determination of the average age of river pipes on the investment basis using *preproduction* new value. This is computed in a similar manner.

Q. Page 65 shows the results of those computations as to each of the various parts of the distribution system.

A. Yes, sir.

Q. And your age dollars, that means the dollars multiplied by the age?

A. Yes, sir.

Q. You take that for what purpose?

A. I use that computation for the purpose of determining the composite age of the entire distribution system.

Q. Which you find to be what?

A. Which I find to be 8.6 years.

Q. What application do you make of that?

A. I used that figure to determine the present value of the distribution system.

COURT: 58.1 is 58.1 per cent of the cost of the mains, the value.

A. Page 66 that figure*d* 58.1 is the composite life or as you might call it the true average life of the street mains, or all of the street mains. And I determined that on the investment basis as we call it.

Q. What use did you make of this in obtaining the present value?

A. The figure of the composite age?

Q. Yes, 8.6 years.

A. If you will refer to page 63 you will find the top item is called street mains and the reproduction new value of this
1338 item is $930,746. Now down on the lower portion of the page you will find the formula that I used to determine the condition per cent and in that formula, or rather before you can apply that formula it is necessary to know the age in years, the life in years and the rate of interest assumed in this compound interest calculation. In that case the street mains the age is the composite age as determined on page 66 viz.: 58.1 years, I should say the composite life and the composite age of the street mains is 8.9 years. Now applying these two figures in that formula together with the rate of interest 4 per cent gives the condition per cent of street mains namely, 95.2 per cent. Now multiply the reproduction new value by the condition per cent gives the present or depreciated value of street mains at $886,017, as shown on the top line of page 63.

Q. In the same way, using the same theory you worked this out for meters house services and the other items going to make up distribution system?

A. I did yes.

Q. What is your estimate of the present or depreciated value of the distribution system and is this estimate in your judgment fair and correct?

A. The present or depreciated value of the distribution system in my judgment is $1,746,924, as shown on page 63 and in my judgment this is a fair and correct value.

Q. That is the condition per cent as carried over to page 17 is it not in your summary there?

A. Yes, that is shown on the summary and in the table on page 17.

Q. Now I want to as briefly as I can explain some matters in your report here. Commencing at page 28 what do you give?

1339 A. On page 28 is given the estimated expenditures in building up this property during the year 1911 not including taxes and interest.

Q. That includes also page 29?

A. Yes, sir.

Q. Now beginning at page 30, at 30 and 31, what do they show?

A. The tables on pages 30 and 31 show the estimated expenditures on the basis of reproduction new at the gas plant during the years 1912 and '13, using base figures only. It is estimated there is no work done at the gas plant during the year 1911.

Q. Now taking this generally from page 25 on to page 42 do these pages contain the details which are set out in the summary on page 24?

A. Yes, sir; they do.

Q. Or putting this in another way the pages following 24, up to and including 42 are all summarized on page 24?

A. Yes, sir.

Q. Now Mr. Baehr referring to page 43, I see there you have the number of feet of each size of street mains by districts, and pages 44, 45, 46, 47, 48, 49 and 50 all relate to paving or matters pertaining to paving?

A. Also to the distribution system.

Q. I mean the mains or matters pertaining to mains?

A. They also include, also on page 50 is shown the details of services and the preceding tables you mention refer to mains.

Q. Then referring to page 51 there is some details as to meters?

A. Yes, sir.

Q. Now state whether or not this is the same data which you used in the preparation of the report?

A. This is the data upon which the report is based with

1340 reference to the expenditures by districts.

Q. Now what is page 52?

A. Page 52 is a general summary showing a determination of the composite life of the entire equipment on a reproduction new basis.

Q. You said the entire equipment. In what sense do you use the word equipment?

A. In that instance in the sense of including the entire physical property except real estate.

Q. And what is page 53?

A. Page 53 is a summary of the same items as shown on page 52 only page 53 results in a determination of the composite age.

Q. The following pages 54 to 62 inclusive cover what?

A. They cover the determination of composite life and age of buildings, apparatus and physical equipment except the distribution system.

Q. And what method, or have you used the same method here you have already described in dererming this composite age?

A. I have.

Q. Now Mr. Baehr did you compute the going value of this plant?

A. Yes, sir.

Q. Turning back now to page 12, How do you define going value?

A. I define the going value as the enchancement in value of the physical property of any concern due to the business that concern has and is doing. This going value has sometimes been called the value of the created income.

Q. You refer here to certain items which have been included in going value by engineers. Please explain what they are, and why in a general way?

1341 A. I have enumerated a certain number of items on page 12, such as advertising, solicitation of business, gratuitous work, demonstrating old and new devices for utilizing gas, educating the public to the advantage of gas and gas plant products, experimental work, trying installations of gas consuming devices, money and efforts spent on prospective business that does not develop, loss of interest because of extensions into what is at first unprofitable territory, but where such extensions are made perhaps on account of the paving and perhaps for their advertising value, cost of the development of the organization in the effective handling of business development. Excess of operating expenses above income during a portion of the development period. Deficit in fair return on the investment during the development period. Now these items which I have just enumerated and which are shown on page 1*w* are stated to be various items which have been held as being included in going value by different engineers at different times. Again other engineers include other items as shown at the top of page 13. Such as management which is explained on that page and which may be stated briefly, that it is imperative that high managerial ability and efficiency should be recognized and allowance for same made for the reason that such a policy would eventually result to the interest of the consumer. Other engineers have also held that *g*he possession of real estate of sufficient area and so located as to be readily available for extensions is an asset of value. Other engineers have held that another feature or item of going value is based on the fact that where connections are made to the consumers' hou-es and business relations established it requires some special incentive to in-

1342 duce such consumer to change to the competing company.

Q. You refer here to several method- of figuring going value. Will you state — your views in the gas industry are?

A. In arriving at my judgment of what the going value of this property is speaking as of January 1, 1911, I have considered several methods. In the first place some enginee-s have held that the annual revenue derived from the sale of gas is a fair measure for going value. The idea that such engineers probably had in their ming*s* was that the least possible development, — period to reproduce the business of any company referring now to any gas company is two years. Such engineer apparently assumed that a

straight line development of the business would take place during such two years and they probably reasoned that the purchaser would assume that he would lose one half of two years' revenue. In other words one year's annual income from the sale of gas. Applying this method to the case of the Des Moines Gas Company as of the date of this valuation would result in a figure of about $540,000. Still other engineers have estimated going value on another basis, namely on the basis of $30.00 per consumer. There idea of estimating $30 per consumer is that it is the average cost per consumer to equip him with gas consuming appliances and secure his business and this has reference to developing business in a reasonable length of time. In a way this fifure results almost the same as the figure based on annual revenue and in the case of the Des Moines Company as of the date of this valuation the figure of $30 per consumer results in an estimate of going value of $597,090.

Q. What method of figuring going value commends itself to your judgment as the most accurate?

1343 A. In my judgment the method which lends itself to the most accurate computation and upon which I prefer to base my judgment of the going value of this company is to measure the going value by the loss incurred during the period of development. In the instance of the Des Moines Company I am measuring this loss by the loss incurred by the Des Moines Company in developing its business to its stage and to the revenue as of January 1, 1911. T-is method of estimating going value is based on the idea of reproducing the entire physical equipment and the business of the Des Moines Company in a given lengt- of time. In order for the method to be such that I would p-ace reliance on it it is necessary that each step of the calculation be such that an experienced gas engineer would see that each step and the amount of time consumed by each protion of the construction and development would be reasonable and wou-d be such that would be readily possible to carry out. The method appeals to me for the reason that I can exe-cise my judgment on each step of the process of reproducing this company, on each step of the process of reproducing its physical equipment, and can also reproduce its business logically and in the period of time which appeals to me as being reasonable.

Q. Now turn to page 138 of your report, does that page and the remaining pages of your report there contain information which you have used in reaching your conclusions as to going value or computations growing out of this information.

A. These pages you have stated namely from page 138 through the balance of the report with the exception of pages 148, and 149, contain computations upon which I base my judgment as to the going value of the Des Moines company, meaning the Des

1344 Moines Gas Company as of the date of this valuation. Pages 148 and 149 you will notice refer to future depreciation.

Q. Do you use this future depreciation in your going value computations?

A. I do not use the future depreciation as figures on pages 148 and 149 because those two pages are merely studies or calculations

of future depreciation and the amount of future depreciation which in my judgment is fair and reasonable is not shown there on pages 148 and 149 but is indicated in the following calculations.

Q. Before we leave these pages, so that -e may leave them, let us take page 148 for a moment. You have there compiled or produced the operation and distribution system, its reproduction value, composite life and then a column headed straight line basis. What does that mean?

A. The straight line basis column represents an amount of money which in my judgment is necessary to set aside each year for depreciation, is estimated on a straight line basis.

Q. What do you mean by straight line basis?

A. That simply means the total reproduction value divided by the composite life of any piece of property or equipment that you are attempting to determine the d-preciation of.

Q. If I had a single piece of equi*o*ment with a life of 50 years and cost $100 that would be one fiftieth each year.

A. That *o*wou*n*d be one fiftieth each year on a straight line basis.

Q. The next column is headed 4 per cent sinking fund basis. That is what?

A. That c-lumn repre-ents the amount of money which would be necessar*t* — aside each year to take care of the total depreciation of any item provided that amount of money so -et aside is in-
1345 vested at four per cent interest and compounded.

Q. What do you mean by the column va*i*red rate of interest?

A. That is a study of the amount of money which would be necessary to set aside each year on a compound interest theory and using different rates of interest as shown on page 149. These different rates of interest are proportioned or assumed according to the life of the item under consideration, a longer lived item acquiring a smaller rate of compound interest than a shorter lived item.

Q. And as the resul*f* of this study what did you adopt as the basis for your fu*r*ture depreciation?

A. If you will refer to page 148 the total amount of money to set aside every year on a straight line basis you will notice is estimated at $76,352. This am*i*unt is tax 2.88 per cent of the total reproduction value. The next column the 4 per cent sinking fund basis totals $33,359 which is the amount of money I have estimated necessary to set aside annually to take care of depreciation if invested at four per cent and this is 1.26 per cent of the total reproduction value. The final column estimated with varied rates of interest totals $38,-733 and this amount again is 1.46 per cent of the reproduction value. Now informing my judgment of the proper amount of money to set aside each year to take care of depreciation, I could not conceive of any company setting aside any amount of money each year without investing it som- way. Some companies invest such mon*e*is in extensions in their own plant. Other companies that I have known have invested such moneys in their own bonds which in a measure is in their own extensions. But, as a matter of fact, it

appears fair to me to consider that no company would set
1346 aside any considerable amount of money without investing it some way or other. On this basis it does not appear fair to me to consider depreciation on a straight line basis. Now on the other hand I cannot conceive of the compound sinking fund basis being entirely safe to adopt without taking into consideration some other things. For instance the lives of these various items entering into the property of the Des Moines Gas Company from my best estimates based on my experience of the probable life of that kind of property. On the other hand I am not able and I do not think it is humanly possible to foresee changes that may take place in the art of gas manufacture or distribution. Neither can I foresee and estimate the fact that more efficient apparatus might be invented which would make it advisable to take out the present apparatus rendered so *absolute* and substitute the more efficient modern apparatus.

COURT: Would it pay to do that?

A. It would not pay to do that unless *it* resulted in a saving of money.

COURT: You would consider the co-t of the old apparatus.

A. Consi-er the cost of the old apparatus, yes. Now there is another feature in relation to properties of this kind which is very important and on which subject our knowledge is altogether insufficient. We are perhaps on the threshold of a great destruction of mains by electrolysis that may have great consideration in reference to approximate cost. From present knowledge we make this estimate and I make the best estimate I am able to from proper consideration of the probable life of these mains, but I am not able to say what might happen to them from that standpoint. Considering
the subject of meters the tendency of the gas business has
1347 been in recent years towards the use of a higher pressure. Gas very recently is beginning to be consumed right up to the burner at greater pressure than we formerly considered at all. For instance gas is used — distributed at pressures which I think I can best bring to your mind by stating that the pressure is somewhere in the neighborhood of one or two ounces per square inch. Now there are lights, gas lights, gas lamps on the market which are using gas up to three pounds pressure per square inch at the burner. That is something like tw-nty four or five times as much pressure as was formerly used. Now I am not *sending* that this is universal but I am saying that this type of burners are being invented and it is found that as the pressure increases at the burner, especially with the type of burner known as a Bunson burner using a Welsbach mantle that the light efficiency per cubic feet of gas used is much greater than under low pressure. It seems when this subject was first developed that the pressure was gradually raised step by step and as this pressure was raised it was found that there was constant increase in the light efficiency. Now as far as we know today we have not reached the limit of this light efficiency and we have not reached the limit of efficiency of gas consuming appliances for that purpose. Now in the same way gas consuming appliances using gas

for fuel purposes it is found that as the pressure under which this gas is burned is increased there is an increase in efficiency. That simply means as applied to the subject I have in mind now, the question of tin meters that there may come a time when the tin meter as now used will no longer be safe because they do not stand very high pressure. It may be that some day that it will be found necessary and reasonable to discard tin meters entirely. That is
1348 another of the considerations which governs the mind in placing an estimate on furture depreciation. Now there may be other features which govern the furture depreciation and which have an influence on my judgment. There may be at some time in the near future or within the life as I have figured it extraordinary demands on street work due to the growth of the city and the increase in civic pride we might say. For instance you take in New York or Brooklyn or Chicago, particularly in New York and Brooklyn at present subways are being built and going to be built and there are going to be more subways than there have been before apparently. Whenever these things take place it requires changes in distribution and in mains and we cannot foresee exactly what depreciation may be caused by these reasons. In considering this subject therefore my best judgment is that it is not safe to base depreciation on the straight line basis, neither is it entirely safe to base it on the ordinary compound sinking fund calculation. But my best judgment is that the depreciation of the Des Moines company and that a fair figure to use for that would be two per cent of the reproduction new value of the property which as indicated on -he table on page 148 totals $2,642,467. Two per cent gives a sum somewhat in excess of $52,000 Now in order to reduce this depreciation allowance rather the sum of money which it is necessary to set aside each year for depreciation to a figure which is convenient to handl*y* a figure which will grow as the investment in the business grows, my judgment is to use instead of the two per cent a figure of ten cents per thousand feet of gas sold. Using for the year 1910 ten cents per thousand feet of gas sold results in a figure of $52,510 which is 1.99 of one per cent of the reproduction
1349 value or corresponds very closely to my original judgment of two per cent and is a trifle less. Therefore my judgment is that a fair amount of money to set aside for depreciation of this company will be obtained by using the figure or ten cents per thousand for the gas sold per year.

COURT: Would not that vary?

A. That would vary yes. As the amount of gas sold increased it would increase. The basis of that assumption is that the amount of money invested in this property will increase from year to year and the amount of actual property therefore will increase from year to year and for that reason I deem it advisable to use the figure which is used and it corresponds in my judgment to the true percentage of the reproduction value which should be used.

Q. I think Mr. Baehr you called my attention to something in this Kings County case which confirms this estimate you have made or -tended to. Will you tell the Master what it was?

A. I was recently employed by the Kings County Light Company of Brooklyn, New York, in a rate case which was presented before the public Service Commission for the first district of New York, and I found that the figures which I worked out in that case, that is in the case of the Kings County Lighting Company was practically the same figure which the engineers of the Public Service Commission in the first district had worked out. In fact our figures differed by something less than $1,000, there estimates as I recall it being about $64,000 and my estimate as I recall it being about $63,000 and I arrived at that on the same basis of figuring and reasoning that I use in this instance.

Q. Who are the engineers for the commission, do you know?

1350 Mr. Byers: If that is extending very far I want an objection to it as entirely incompetent and immaterial what somebody else did or how it compared with his work.

A. I don't know them by name sir.

Q. I mean what relation do they sustain to the commission, what do they do for them?

A. As I understand it they are the engineers employed by the Public Service Commission of the First district in New York for the purpose of carrying on this kind of work for the commission.

Defendant moves to strike this evidence not because it is so very important in this case, but because it is irrelevant and we do not care to go into that field from our side of the case to either dispute it or support it.

Q. Turning to page 138 which is the beginning of this data which you used in figuring your going value, that shows what?

A. That table on page 138 gives the past gas sales of the Des Moines Gas Company in cubic feet, rather in thousands of cubic feet beginning with the year 1900 up to and including the year 1910. And thereafter gives my estimate of the future gas sales of the Des Moines Gas Company for the years 1911 to 1917 inclusive. That table also shows in the last column the estimate reduced to a percentage increase in total over the previous year.

Q. Why did you run this estimate up to and including 1917?

A. Because in making the figures for the going value calculation I estimate that the comparative plant will catch up to the going plant at the close of the year 1917.

Court: What you term the hypothetical plant?

A. Yes, sir.

Q. These figures down to and including the figures for the
1351 year 1910 were obtained by you in what manner?

A. These figures were given to me in a memorandum by the company and I assumed those figures to be correct.

Q. How did you get the figures after 1910?

A. The figures from 1911 to 1917 inclusive, are my estimate of the future gas sales of the Des Moines Gas Co.

Q. You know that Mr. Lea has testified in this matter. Do you know whether these estimates agree with his or not?

A. I don't know whether they agree with Mr. Lea's figures or not. These are my own figures and I paid no attention to anybody's else.

Q. You don't know then whether they agree or do not agree?

A. I do not.

Q. The word parallel is down here, what does that mean?

A. That means beginning January 1, 1918, the going plant and the comparative plant run parallel. That simply means I felt it was not necessary to carry the estimate beyond January 1, or rather beyond December 31, 1917.

Q. On the next page you have something headed method of calculation of gas consumed by districts of the comparative plant. What occasion was there for making any computations of this kind?

A. You will have noticed in some earlier tables in this report that a careful estimate was made of the reasonable rate at which the physical property could be duplicated or reproduced and in the distribution system in order to get at that reasonable rate and as before explained we divided the city into three districts, having determined the rate at which we could reproduce the mains and services and meters in these districts, it next became necessary to determine the rate at which the comparative plant would secure business.

1352 In order to determine this we secured data—I say we now, meaning myself—I secured data on the consumption of meters in the third district in 1910 said data being furnished to me by the gas company. Now the result of the gas company's determination as to the consumption per meter in the three districts and also dividing this consumption between that of the regular meters and that of the prepayment meters is shown in that table. In the lower half of the page 139 I have calculated a percentage which is used throughout the development period applying that consumption per meter as determined in the tables furnished to me by the gas company. For instance in District No. 1 as shown in the lower table there were in use at the time of this valuation 4,986 regular meters and 4,515 prepayment meters. Multiplying the number of regular meters in District No. 1 by the consumption per meter in District No. 1 as indicated above on the same page results in an estimated sale in District No. 1 in 1910 of 194,878,000 cubic feet for regular meters.

Q. That is where?

A. That is just below the middle of the page under the heading of District No. 1.

Q. What is there is 194,878?

A. Well that table is expressed in thousands of cubic feet. And the same figure for the prepayment meters in District No. 1 is 87,473 which amount means thousands of cubic feet. Making a total in District No. 1 of 282,351.

Q. To be sure we have got that straight that is 282,351 thousands?

A. That really means 282,351 thousand cubic feet.

Q. You have expressed it here in thousands?

A. I have expressed it there in thousands of cubic feet

1353 omitting the last three ciphers in each instance. In the same way I have calculated the consumption of District No. 2 and

found that a total of 145,227 and in the same way District No. 3 and found that a total of 88,846. The total of the three districts calculated in this way is 516,424. This figure differs from the actual sales of the Des Moines Gas Company in the year 1910 somewhat, therefore in order to get the percentage of consumption of each district to the total I have divided the estimated consumption for instance in District No. 1 by the total estimated consumption and the same in District No. — and the same in District No. 3 and that results in the following percentages. District No. 1 sells or uses 54.8 per cent of the entire gas sold in Des Moines, District No. — 28.1 per cent and District No. 3, 17.1 per cent and in determining the sales of gas in each district in the comparative plant I use these percentages as applied to the sales of the going plant for the same year.

Q. Now turn to page 140. In computing your estimate of the operating expenses and the income of the hypothetical plant or comparative plant, was it necessary for you to have the amount of gas which it would manufacture and sell?

A. It was.

Q. What was the purpose of this computation that is set out on page 140?

A. The computation on page 140 gives the estimated sales both of the going plant and of the comparative plant by districts for each year during the development period, that is from the time gas was first turned on or would be first turned on January 1, 1913 up to and including the year 1917.

Q. And that is shown by districts and also by aggregates
1354 for each year?

A. Yes, sir.

Q. The per cent consumption comparative plant is per cent of what?

A. That percentage is derived from the following two pages, pages 141 and 142. These pages——

Q. You didn't catch my question. That is the per cent of what?

A. That per cent applied to the consumption of the going plant gives the consumption of the comparative plant.

Q. Now then turn to these succeeding pages, 141 and 142 and state how you reached that conclusion which you show on page 140 as to this percentage?

A. The table on page 141 is my estimate of the physical rate of installing meters of the comparative plant. I can illustrate this best by taking as an example District No. 1. It is estimated that all mains and services in District No. 1 would be laid in the year 1912. Now the question that next arises is the question of the rate of installation of meters. My judgment is that there would be no meters installed on January 1 which naturally follows the assumption that the mains and services would be laid in that district in that year. My judgment is that business would be acquired at the rate of 60 per cent of the number of meters actually in use in District No. 1 of the going plant would be in use by the comparative plant at the end of the year 1912 and that the average number of meters in use in this particular district in 1912 would be 15 per cent of the meters

in use in that dis*yti* of the going plant. In the year 1913 therefore we would start with 60 per cent of the meters in use and I have estimated that business can be acquired in this district at such a rate that at the end of the year 1913 100 per cent of the meters
1355 would be in use and the average for that use would be 80 per cent. The same method holds through the other districts.

Q. Now turn to the next page?

A. Page 142 gives the estimated rate of the actual acquiring of business as expressed in consumption of gas of the hypothetical plant at the different periods of each year in which this is compared to that of the going plant. I can illustrate this by taking Di-trict No. 1. It was estimated that gas is turned on January 1st, 1913. From the preceding table on page 141 you will notice that the estimated number of meters in use on January 1, 1913 is 60 per cent of the total. My judgment, however is that you could not immediately acquire the full consumption of gas in that district. That is you could no*g* immediately acquire the full consumption of gas for each meter installed. My judgment is that there would be enough business or gas consumed so that 25 per cent of the consumption of the meters installed on January 1, 1913 would be consumed at once. By the end of the year 1913 that 75 per cent of the consumption of the meters installed would be secured. Now it is well to bear in mind that both these tables are expressed in per cent gas and not in actual cubic feet so that when these tables are used it is necessary to multiply these percentages together. Now my estimate of the average consumption of gas for the year 1913 of the meters installed during that year or rather of the average actual number of meters installed that year is 45 per cent and as you follow down through that table you will notice that the business acquired gradually increases until the consumption of gas reaches 100 per
1356 cent. For District No. 1 it is estimated that the business in this district is secured to equal that of the going plant by the end of the year 1916, although all the meters are installed at the end of the year 1913. In the same way for District No. 2 it is estimated that here the business would be secured by the end of the year 1916 to equal 100 per cent, but all the meters would be installed by the end of the year 1914. And the other district is shown in the table.

Q. Turning to page 143 you take up what there?

A. That is merely data giving the record of send out in cubic feet of the maximum day, the maximum week and the send out for the year of the Des Moines Gas Co. for the years 1904 to 1910 inclusive.

Q. You obtained this information where?

A. This information was given to me by the gas company.

Q. Turning to page 144 what appears there and where did you get this information?

A. This information was given to me by the gas company and is a statement of the unaccounted for gas of the Des Moines Gas Co., expressed both in cubic feet and in per cent of gas sent out for each of the years 1904 to 1910 inclusive.

Q. That includes the gas sent out that is not registered by consumers' meters and accounted for that way.

A. The unaccounted for gas is the difference between the gas as sent out from the station and the gas as registered by the consumers' meters or otherwise actually accounted for.

Q. Now then digressing for a moment these percentages the last three years are four, four and a fraction and five and a fraction. Now are these high or low?

A. That per centage of unaccounted for gas is very low and shows that the condition is good in -hat respect. For instance I
1357 made some computations of the unaccounted for gas in various places and have also made some computations of the unaccounted for gas in Des Moines reduced to per mile of main on a 3 inch basis. That is reduced all mains to i-s equivalent number of feet of three inch main. In Des Moines the unaccounted for gas per mile of actual main last year was 129,000 cubic feet and reduced to the equivalent three inch basis it was 71,600 cubic feet. Now comparing with some other cities I have got for instance Brockton, Massachusetts, 177,650, Cambridge, Mass., 96,067, Fall River*m* 168,-085, Lawrence 124,354, Lynn, 153,327, Worcester, 185,532, Newton, 42,661, Springfield, 47,326. These statistics from Massachusetts cities were derived from the rep-rt of the Massachusetts commission, that is the last report issued for 1910, and in this case I believe gives data up to July 1, 1910. You will notice that in most instances the unaccounted for gas of these cities per mile of equivalent three inch main is considerably over 100,000 feet per year and only three of them are below 100,000, one of these being Cambridge with 96,000, Newton 42,000, and Springfield 47,000, in round numbers, whereas Des Moines last year was 71,600 feet. This method gives a very accurate way of comparing the accounted for gas of various cities and shows that the unaccounted for gas in Des Moines is very low. I have also reduced the unaccounted for gas in these Massachusetts cities to per cent of gas sent out as follows: For the year 1910, except the Massachusetts which I believe end July 1, 1910. Des Moines in percentage showed 4.31; Brockton, 10.97; Cambridge, 4.15; Fall River, 6.91; Lawrence, 7.03; Lynn, 6.35; Newton, 3.54; Springfield, 2.66; Worcester, 7.32. These compari-
sons lead me to say that the unaccounted for gas in Des
1358 Moines is low, is very low.

Q. Now the next page here in Exhibit 21 is revenue per thousand in Des Moines only which I think explains itself except the note there. What does that mean?

A. In looking over the operating income and expenses of the Des Moines Company for the year 1910 and one or two years previous I find that the company has a small income from Miscellaneous sales.

Q. Of what?

A. Which are sales of other things besides gas and in order to reproduce the condition as nearly as possible I have taken account of that.

Q. That you have reduced to the amount per thousand feet?

A. I say as to the estimate of income of both the going and the comparative plant during the business development period.

Q. That amount is .0005 per thousand feet?

A. That should be $1.0058.

Q. What should be 1.0058?

A. The figure you have just read. The figure I have read includes miscellaneous sales of .0005 dollars per thousand feet.

Q. So in order to get the revenue per thousand feet of gas sold should this be added or subtracted from the revenue $1.0058 on the same page?

A. It is included in that revenue as shown because it is included in the total revenue.

Q. Now what are these figures that are contained on pages 146, 146½ and 147? What do they relate to?

A. These figures are to show the calculations I have made to obtain the estimated future taxes of both the going plant and the comparative plant.

1359 Q. I see that the table on page 147 is headed estimate of future taxes for going value calculation?

A. The particular table on page- 146 and 146½ represents the calculation of the taxes for the going plant and the table on page 147 represents the calculation of the taxes for the comparative plant.

Q. With these figures as a basis what attention if any did you give to estimating the operating expenses of the going plant?

A. I made a very careful study of the probable operating expenses of the going plant for the years 1911 to 1917 inclusive as shown in the first large table following page 149. This study was based upon the actual operating results of the Des Moines Gas Co. for the year 1910 to which I made certain adjustments for instance deducting estimated cost of supplying gas to Valley Junction, and I also adjusted certain other items so that the cost as I estimated it would represent in my judgment a fair average cost of operation for the years under consideration.

Q. You have another large sheet following this headed estimated operating expenses of the comparative plant during period including details and results of going plant 1910, with estimated Valley Junction cost deducted. What is this table?

A. This table is my estimate based on a study of the operating expenses of the company of what the comparative plant would require for operating expenses beginning with the year 1911 up to and including the year 1917. I might say that the column shown under going plant 1910 adjusting certain items and deducting cost of supplying Valley Junction is the same as the corresponding column on sheet headed operating expenses of going plant.

1360 Q. Take the year 1913 under operating expenditures opposite the word manufacturing, you have 3600 before your column showing cost per thousand. What does that mean?

A. That means that my estimate of the number of dollars required for that particular item manufacturing in the year 1913 of the comparative plant is $3,600. Comparing that to the going plant you will find that in the going plant my estimate of the amount of that particular item for that year 1913 is $4,400. Now I do not say that the comparative plant will require that *must* expenditure in

that item. My estimate is $3,600 for the comparative plant and the net returns——

M. BYERS: What are you referring to?

A. The comparative plant estimated operating expenses the year 1913 as itemized the amount under per M made. Now this $3,600 I reduced to per M made. In order to get this reduced to the cost per thousand feet made it was necessary for me to estimate not only the sales of the comparative plant for that year but also the unaccounted for gas. Now the unaccounted for gas of the Des Moines company is very low and in my estimate of the operating expenses of the going plant I have assumed that the company would be unable to maintain the unaccounted for gas as low as it had in the year 1910 and that the unaccounted for would increase in 1911 to 4.5 per cent, in 1912 to 4.6 per cent until it reached five per cent in the years 1916 and '17. Now in the comparative plant the tendency of the unaccounted for gas would be the other way. It would start higher and would become less as the amounted business increased and I have shown my estimate of the unaccounted for gas of the comparative plant on the sheet for the comparative plant.

1361 Q. In each instance then where you have figures preceding an item in the column per M made, these figures represent the expense in dollars for that year for that particular item as you estimate it, is that right?

A. They do not. The figure 3600 represents dollars, but——

Q. I guess I did not make myself clear. Where you have figures as I refer to them as 3600, 2500, 3000 without any per cent or anything else accompanying them, do they represent the expense in dollars for that particular item.

A. They do.

Q. The next class is illustrated by the second item boiler fuel opposite which you have under column per M made, as 43 and to the left of that 10 pound X. Wha- does that mean?

A. The boiler fuel of the Des Moines company for 1910 ran a certain number of pounds of coal used per thousand feet of gas made. Now I have estimated when the comparative plant starts up that the boilers would have to be run and that the amount of coal while in total not as great as that of the going plant, yet owing to the much smaller amount of gas made would be greater per thousand feet of gas made and have made my figures and my judgment is based on my experience in other plants that it will require for the amount of gas made there in this kind of a plant 10 pounds of extra boiler fuel per thousand feet of gas made in the year 1913.

Q. So that 10 pounds X is in effect an expenditure in the fuel figured there upon .0413?

A. Yes, sir; from that the figure per thousand of .0413 can be deduced.

Q. I notice in the next year this same item you have five pound X?

1362 A. Yes, sir.

Q. That means as the consumption or product is increased that excess is decreased?

A. That means that owing to the much greater amount of gas

made the quantity, the extra quantity of coal per thousand feet decreases very materially and subsequently disappears.

Q. In the succeeding three years there is no excess shown there?

A. There is not.

Q. Your next item here is under generator fuel I think 8.5 pounds excess what does that mean?

A. That means that my judgment of the amount of generator fuel per thousand feet of gas made in 1913 of the comparative plant will be 8.5 pounds more than the actual going Des Moines Co. used in 1910 per thousand.

Q. What is the difference between boiler fuel and generator fuel?

A. The difference is that the fuel that is used in steam boilers is called boiler fuel and that is used for making steam. The fuel called generator fuel is the coke which is used in the water gas generator for making water gas.

COURT: That is what is used for making gas?

A. Yes, sir.

COURT: Is that used altogether here?

A. Yes, sir.

Q. What, don't they use local coal here for generator fuel?

Objected to as incompetent, immaterial and the witness is incompetent.

A. Local coal cannot be used in water gas generators, it will not serve the purpose of generator fuel which has to be a hard carbonaceous fuel.

Q. Opposite manufacturing labor you have 20 per cent X.
1363 That is explained the same way as these other items?

A. Yes.

Q. Under oil you have .5 gallons X?

A. Yes, sir.

Q. That is explained the same way?

A. This means my estimate of the consumption of oil per thousand feet of gas made of the comparative plant in 1913 will be .5 gallons more for each thousand feet of gas made than the going plant used last year.

Q. I notice there is an item here at the end of your manufacturing just before your net manufacturing expense, less residuals that is in red. Why is that put in that way?

A. That is deducted from the manufacturing expense because it represents the amount of money estimated to be realized from the residuals in this case tar.

Q. That is the process of manufacture produces some tar.

A. Yes, sir.

Q. And you deduct what is realized from that from the cost of manufacture?

A. Yes, sir.

Q. Now then I have just referred to this deduction on account of the amount realized from the sale of the residual here, tar. Is this a customary way of figuring these expenses making that deduction and in that way?

A. It is. In this kind of a plant they have a bi-product which

has value. I take cognizance of that in the estimated cost of manufacture.

Q. Turning to the next large sheet will you please explain now just how you have attempted to compute the cost of reproducing this business by the use of the factors we have been consider-
1364 ing?

A. In general I base my judgment of the going value on the difference in net earnings reduced to their present worth of the going plant and the comparative plant during the period of development of the business. In the first place the first calculation shown in the upper right hand corner of this sheet is the investment reduced to its present value and reduced to the expenditures in each year, omitting now the first column in reference to working capital or going value. The second colum- shows my estimate of the amount of working capital to allow during each year totaling $150,000. The third column is blank. The fourth column gives the total of the investments. The reason that the third column is blank is that this is the first trial calculation in which no allowance whatever is made for the amount of going value in the investment calculation. Now the second calculation following at the upper right hand of the page under construction gives the calculation of the interest which enters as a revenue of the comparative plant. This is deduced in the manner shown, namely, column No. 1 of the interest calculation shows the total investment to date in the comparative plant. That amount which I have deducted—take for instance the first year the investment is estimated to be $270,758.

Q. May I interrupt you a minute. I want to tie some of these things together. We have already referred to some parts of your report which show the investment in detail each year. Without finding it now do you remember the parts of the report referred to?

A. Yes, sir.

Q. Now how do the amounts shown there check with these
1365 amounts given *given* here?

A. They will not because these amounts are amounts reduced to present value. The amounts shown in the report are amounts on the basis of the reproduction new.

Q. But they are based on these figures that are goven here?

A. They are, yes.

Q. Now will you proceed please?

A. Going back to the interest calculation the amount $2,440,613 at the top of column No. 2, is the difference between the total estimated investment as shown under the investment calculation less the amount invested for that year as shown in column No. 1. Now column No. 5 shows the amount invested for construction during the year or the amount used for construction during the year and is the same as the last column of the investment calculation. To determine the amount of interest that this money would accrue it is estimated that the amount of money which is used for construction during the year is invested at 2 per cent on daily balances and the interest on it is therefore figured at one half of two per cent on the assumption that the construction proceeds on a straight line during

the year. The amount of money which is left from the total and which is estimated as not being used during the year is figured to be invested at the net income rate of two per cent for the entire year and the calculation of that is shown in column No. 4. The sum of the interest in column No. 4 and No. 5 gives the total interest estimated to be earned by this money during each year and this total interest is carried down into the comparative plant under the column interest on unemployee capital.

Q. That would appear opposite 1911?

1366 A. The amount as calculated in 1911 under first preliminary calculation is $51,520, that is the amount that appears opposite 1911 in the comparative plant under the heading interest on unemployed capital.

Q. Has interest been computed in the same way for each of the succeeding years?

A. It has.

Q. Now coming dow- to your comparison take 1911 with the going plant and tell us what you show there?

A. Referring to the calculation going plant in 1911 the second column which is headed M cubic feet of gas sold is my estimate of the amount of gas that will be sold in Des Moines during the year 1911. The next column shows the increase over the previous year in per cent and these figures correspond to the figures in the previous pages that we have referred to. Now the revenue from the sales of gas is estimated at $1.0068 per M, and multiplying the M cubic feet sold in 1911 by this rate gives the revenue from sales of gas of the going plant for 1911 of $562,469. In addition to the revenue from the sale of gas the company as I have explained before has a small revenue from miscellaneous sales of .0005 per M which in the going plant in the year 1911 amounts to $279. The going plant does not receive interest on unemployed capital therefore the gross revenue is the sum of the two preceding revenues or $562,748. It is next necessary to estimate the operating expenses of the going plant and this I have taken at $.5833 per thousand feet sold which is the figure shown at the bottom of the table total estimated operating expenses of the going plant for the year 1911. That reduced to dollars amounts to $325,782. That amount is the operating expenses

1367 less taxes and depreciation of the going plant for the year 1911. The taxes of the going plant which I have estimated in the year 1911 at $42,431 are estimated in detail on page 146 of my report. The amount of money to set aside for depreciation I have taken at 10 cents per thousand feet sold and this amount in dollars estimated for the going plant for 1911 is $55,867. The total operating expenses therefore of the going plant for the year 1911 is estimated at $424,170 which is the sum of the operating expenses less taxes and depreciation, plus taxes, plus depreciation. Deducting total operating expenses estimated to be $424,170 from the gross revenue $562,748 leaves an estimated net earning of the going plant for the year 1911 of $138,578. Now in order to compare the earnings of the going plant to the comparative plant to be subsequently worked out I reduced the net earnings to their present worth using an interest

rate of six per cent. This results in a factor for one year of .9434 and applying this factor to the net earnings for 1911 of the going plant results in the present worth of the net future returns of this plant for the year 1911 of $139,774.

Q. Have you gone through each year in the same way for the going plant?

A. Yes, sir.

Q. Following that is the comparative plant? What difference is there between the two computations.

A. There is this difference that the comparative plant is not in operation during the years 1911 and 1912 but during 1911 — 1912 the comparative plant enjoys a revenue from the interest on unemployed capital as before explained. After 1912 that is beginning with the year 1913 the comparative plant begins to sell
1368 gas and therefore enjoys a revenue not only from interest from unemployed capital but also from the sale of gas. During the years 1911 and '12 inasmuch as the plant is not operative—I am speaking now of the comparative plant there would be no operating expenses and no taxes chargeable to operation. However, depreciation begins immediately and I have made a calculation of the amount to set aside for depreciation. Otherwise the calculation follows the same general lines as that of the going plant.

Q. .Now with reference to the matter of depreciation under the per M column where you have ten cents on the going plant I see for 1911 you have 3.04 per cent?

A. Yes, sor.

Q. Running down to 1914, 89.2 per cent. After that it is at ten cents per thousand again? What do these verious per cent- mean in there?

A. During the years 1911 to 1914 inclusive, or rather during the years 1911 and '12. there is no gas sold by the comparative plant at all. Therefore, the depreciation for these two years could not be based upon the amount of gas sold and it is necessary in those years to base the depreciation upon the amount of property or amount of the investment. The figure 3.04 per cent used in 1911 results from estimating the percentage of investment compared to the total in that year omitting the real estate and that percentage in that year is 3.04. In the same way the percentage for the year 1912, results in a percentage of 23.7. Now in the years 1913 and '14, especially during 1913 the amount of gas sold is so light that if depreciation were set aside at the rate of ten cents per thousand feet sold it would result in a figure much below two per cent of the prop-
1369 erty. I therefore continued the percentage calculation up to and including the year 1914 after which sales of gas are at a point where in my judgment it is fair to apply the full rate of ten cents per thousand depreciation.

Q. One word more about that. In 1914 we have 89.2 per cent and the amount $58,550. That amount is 89.2 per cent of what?

A. That is 89.2 per cent of the physical equipment or rather the investment in 1914 as related to the final total investment leaving out of consideration real estate.

Q. You don't mean $58,550 is 89 per cent or 90 per cent of the total investment up to that time?

A. Not at all. Depreciation is based on that 89 per cent.

COURT: 89 per cent of the reproduction?

A. Yes based on the reproduction new value?

Q. You don't mean to say 89 per cent depreciation.

A. I do not. The depreciation is based on 89.2 per cent of the —I have got the exact figure here, in this case of $2,671,696 or $2,379,896 which at 2 per cent equals for the year $58,550.

Q. Then this 89 per cent represents the amount of the investment therefore the basis of the depreciation calculation up to that time.

A. I am mistaken on that Mr. Guernsey. The 89 per cent represents that in 1914 89.2 per cent of the total physical property is in operation and that amounts to $2,379,896. Now that is 89.2 per cent of the total reproduction new value less real estate. Now then the amount of depreciation $58,550 is derived from multiplying the depreciation as calculated in the going plant for the year 1914 by that 89.2 per cent. I was mistaken before in my assumption, I had that wrong at first.

1370 Q. Now this first calculation or tabulation here of net going value gives you the final column here as comparative plant which represents the difference in favor of the going plant in each year?

A. Yes, sir.

Q. That is its present worth of course I mean?

A. Yes, sir.

Q. What is the aggregate which you get there?

A. The aggregate of the differences of the present worth of net future returns if $532,659.

Q. Now having obtained this result from this first trial what do you do with this $532,659?

A. I use that to make a second trial calculation which is shown on the page following the first trial calculation. You will notice that on the second trial calculation in the upper left corner there is a column headed "Justifiable expenditure in developing business" and in this column you will find totaled the $532,659 derived from the first trial calculation.

Q. And distributed over the various years?

A. And distributed over the variou- years just as it is in the first trial calculation.

Q. This is not in the first trial calculation?

A. Well it is derived in the first trial calculation at the end of it.

Q. Now then how does that affect these interest calculations?

A. The addition of the amounts for justifiable expenditure for developing business increasing the total amount of the investment, therefore increases the amount of interest earned by unemployed capital as shown in the calculation at the upper right hand corner of the second calculation.

Q. Your going plant in this second calculation is it

1371 changed or not?

A. The going plant is exactly the same as in the first trial calculation. That remains the same throughout.

Q. And what if any changes are there in the calculation as to the comparative plant except these which arise our of the allowance to the comparative plant of this matter of interest?

A. That is the only change in the comparative plant with the exception that that produces changes in the earnings.

Q. These changes in interest followed out of course change the other items right straight through. What d-es this second trial give you as your difference between the two plants, the measure of this going value?

A. The second trial calculation naturally results in a lower figure and amounts to $509,146.

Q. Now what is your next step in your final calculation?

A. The next step if a complete calculation was made would be to use the figure obtained in the second trial calculation, namely $509,146 but in figuring this out I have made the necessary adjustments at once in the final calculation to make the result agree.

Q. What do you mean by making adjustments to make the result agree, you mean forcing a balance or things like that?

A. No, sir. If I had made a third trial calculation, if I had used the figure obtained on the second trial calculation of $509,146 I would have obtained a figure somewhat in excess of $509,146. Then I might have made a fourth, a fifth, a sixth and so on *moc* calculations narrowing down the difference each time between the figure derived by the calculation of assumed amount for going value until that would finally result in a figure when the estimate*d* of going value finally agrees with the amount shown by the
1372 calculation. By taking interest and making small adjustments in the estimated increments for each year it is not necessary to expend all this work and go through all these calculations and I have just simply shown the final calculations where I assumed the going value is $509,795 and where the result of the calculations shows the same figure.

Q. That is it proves to the dollar?

A. In this case it proves to the dollar.

Q. That is with reference to the aggregates. Now your column headed justifiable expenditure for developing business in the computation in the left hand upper corner of this last sheet is the column making *yp* the items of going value?

A. Yes, sir.

Q. Now what is the fact as to whether the aggregate not only checks but also the amount for each year?

A. The amount for each year's checks and the aggregate also checks. After making a number of these calculations the interest adjustments become simple.

Q. Turning back to page 17 is the amount $509,795 shown in your summary there as going value the amount ascertained by you in the manner just stated?

A. That is the amount and in my judgment represents a fair allowance for going value.

Q. Now Mr. Baehr have you reached a conclusion as to what would be the fair actual cost of reproducing the property of the Des Moines Gas Company used *used* and useful in its business of manufacturing and distributing gas in the said city as of January 1, 1911?

A. I have.

Q. And what in your judgment is that amount?

1373 Objected to as incompetent, immaterial and object to the witness as not competent.

A. The cost of reproduction new my judgment of the amount is $3,531,491.

Q. Now have you reached a conclusion as to the present value of the property referred to, that is the property of the Des Moines Gas Co. used and useful in its business of manufacturing and distributing gas in the city of Des Moines?

A. I have.

Q. What in your judgment was the actual reasonable value of that property on the 1st day of January, 1911?

Mr. BYERS: The question in that form is objected to as incompetent and immaterial.

Mr. GUERNSEY: What formal objection is made to the question?

Mr. BYERS: We stand on the record.

A. My judgment of the fair present, or depreciative value is $3,221,166.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

1373½ Tuesday Forenoon Session.

AUGUST 1, 1911—at 9:30 a. m.

All counsel for the respective parties present.

Testimony on part of complainant resumed as follows:

WILLIAM A. BAEHR, re-called for further direct examination, examined by Mr. Guernsey, testified as follows:

Q. Mr. Baehr, the last thing I asked you last evening was your estimate as to the value of this property of the Des Moines Gas Company used and useful in its business of manufacturing and distributing gas in the city of Des Moines on January 1, 1911. I wish you would state whether you have formed a conclusion as to the present value of this property, and if so, what such value in your judgment is.

Objected to on part of defendants as being incompetent and immaterial.

A. In my opinion the present value of this property is enhanced over the value of January 1, 1911, by the additional construction which has been carried on since that time and to some extent the alue is decreased by the extra amount of depreciation which has

taken place since that time; but as a whole my judgment is that the property is enhanced somewhat in value.

Moved on part of defendants to strike the answer as not responsive and incompetent.

Q. Now, referring to your report marked Exhibit 21, there are some general questions I wish to ask because I did not go through it item by item. In the first place, is the property which you refer to in this report and valued in this report the property which is described in the inventories Exhibits 15 and 16?

1374 A. It is.

Q. Now you have referred to buildings here, building 1-A and B; is the designation of the buildings the same as the designation applied to the same buildings in this inventory?

A. It is.

Q. And as to contents of the buildings, you have followed the inventory also?

A. I have.

The MASTER: You have compared them, have you?

A. Yes, sir.

Q. Now, I want also to ask you, Mr. Baehr, whether—ask you generally—whether the statements and estimates made by you and contained in this Exhibit 21 are each of them in your judgment true and correct.

Objected to on part of defendants as being incompetent and immaterial.

A. They are.

Q. And what is the fact as to whether the prices and costs taken by you in making up Exhibit 21, Mr. Baehr, were in your judgment in each instance reasonable, fair prices for the things to which they were applied at the time as of which the valuation was made?

Objected to on part of defendants as being incompetent and immaterial; the witness is not shown to be competent.

A. They were.

The MASTER: I notice in your itemized account of each building you have what is termed interest and taxes; that is added to the net construction cost of the material.

A. Yes, sir; I call the net construction cost the base figure.

1375 The MASTER: Now where is the summary on buildings?

A. It is on page 77, your honor; that is the final figure there at the top of the page.

Mr. GUERNSEY: You mean page 76, don't you?

A. Yes, 76 and 77.

The MASTER: That gives the total as of now, present value of net construction cost?

A. That gives the total construction cost on a basis of reproduction new.

The MASTER: Now where is the real estate given on the basis of the present value?

A. You will find that on page 17.

Q. May I make a suggesion there. Page 17, Mr. Baehr, gives this in the aggregate; now if you will turn to page 126, do we not find there the total reproduction cost or value of each building, its condition per cent, and its present value given in detail?

A. That is right.

Q. And then that total from page 127 is carried to page 17?

A. It is.

The MASTER: That is the buildings alone?

Mr. GUERNSEY: Yes, that is the buildings alone. We will make a memorandum showing these pages where they are classified, if that will be more convenient to you.

The MASTER: That would be very convenient to have.

Q. Now, Mr. Baehr, let us take the next one, contents of buildings, that follows the buildings, doesn't it, in each instance?

A The contents begin on page 126.

Q. And follow the same arrangement we followed before?

A. Yes, sir.

1376 Q. The contents begin at page 78 for the base and the additional items showing the total reproduction cost?

A. Yes, sir.

The MASTER: I think I understand that now.

Q. Now, are you familiar in connection with your business with the reasonable prices of the apparatus and machinery and things of that kind that are contained in this inventory and contained in your Exhibit 21, Mr. Baehr?

A. I am.

Q. And are the prices taken by you in each instance including your unit prices for labor and material as well as the prices for machinery, apparatus and other things in your judgment reasonable and fair?

Objected to on part of defendants as being incompetent and immaterial; the witness is not shown to be competent.

A. They are.

Mr. GUERNSEY: We now offer in evidence Exhibit 21.

Objected to on part of defendants as being incompetent and immaterial, being a mere memorandum made by the witness. We object to all that part of it that refers to the so-called items of additional cost as incompetent, immaterial and irrelevant and not an issue in this case. We object to that part of Exhibit 21 that refers to the so-called going value because it is incompetent, irrelevant and not an issue in this case. We object to all of the tables and computations and figures set out in Exhibit 21 for the reason that they are incompetent and immaterial, the competency of the witness as to those computations has not been shown; and for the further reason that it already appears that a large part of the computations and tables and figures are based upon memoranda and infor-

1377 mation furnished by other persons and it is mere hearsay and not the best evidence.

The MASTER: If I understand you, you don't make any objection because the witness' attention has not been called to each and every item?

Mr. BYERS: Not at all.

Defendants also make the same objection, incompetent and irrelevant, to all that part of Exhibit 21 that deals with mains under pavement, services under pavement and estimated cost of reproducing, tearing up and replacing the paving, and to all that part of Exhibit 21 that deals with crossings under railroads, street railways as to both mains and services, if there are any such, for the reasons heretofore stated; and we object to all that part of Exhibit 21 that deals with items 1, 2, 3, 4 and 5 as the witness has stated them here, being, 1 contingencies, 2 is engineering and superintendence. 3 legal organization, liability for casualty and fire insurance, 4 is taxes, and 5 is interest, for the reason that all of these items and proof with respect to these items is entirely immaterial and irrelevant to the question involved in this controversy.

In making this objections as heretofore stated, we waive the minute and detailed identification of the Exhibit of the figures of the several items contained in it.

The MASTER: As I understand that objection it applies to each and every item contained in it, waiving, however, the fact that the witness' attention has not been called particularly to the items?

Mr. BYERS: We are waiving the identification of this book but object to its fontents.

1378 Q. Mr. Baehr, I wish you would in a general way state whether this plant is adapted to the purposes to which it is put, that is, manufacturing and distributing gas to consumers in the city of Des Moines?

A. In my judgment the plant of the Des Moines Gas Company is well adapted to serve the city of Des Moines with gas, and the people of Des Moines. The plant is of sufficient capacity and still it is not overbuilt. The quality of the service is good for the reason that the average candle power, as shown by the Company's records for the year 1910, was 22.78 and the average British thermal units, or heat units, per cubic foot for the year 1910 was 600. These qualities constitute a good gas. The apparatus for making gas is good; it is modern apparatus. The mains are of fair size, so that the people even in the outlying districts receive sufficient gas pressure. I based my judgment in this respect on the inspection of the pressure tests last winter where I found that most of the city was receiving during the time of the *peal* load, that is, at the time of maximum consumption, a pressure of three inches water column or above that, with a few isolated instances of pressure down to possibly 2.5 inches. That constitutes first class gas pressure service. The management, the engineering and the supervision of the company appeared to me to be very good, and I think the plant in general is well adapted to Des Moines.

Moved on part of defendants to strike out the answer of the wit-

ness, all of it, for the reason that it is made up of conclusions based upon hearsay and upon records that are not before the Master. The answer is for that reason incompetent as a part is based upon hearsay, part is a conclusion and part is original testimony, and it so intermingled that it is impossible to separate it; therefore I move to strike the whole answer.

1379 Q. Mr. Baehr, will you please explain the necessity for surplus capacity in the plant of the Company?

A. In the first place, reserve capacity is necessary to good service. It is essential in supplying gas that the supply of gas be continuous and that it be not interrupted even for an instant. The reason of this is that in a city using gas there are always some gas burners open, that is, the gas is burning, and if the supply of gas were discontinued for one reason or another from the works these various burners which are open would remain open and subsequently when the supply of gas is again turned on a number of these burners would undoubtedly continue open and gas would stream into the rooms or buildings in which these burners are located. The result of this is great danger due either to asphyxiation or from explosions. Furthermore, there is necessity for reserve capacity on account of supplement breakage or accidents in portions of the generating apparatus. In addition to this it should be understood that a water gas generator, or rather a water gas set, meaning by that the generator, carbureter and the super-heater must be shut down in periods of from 40 to 100 days—depending on the amount of work that set does, or rather the amount of gas it makes—for the purpose of relining or recheckering the sets. During the time that the relining or recheckering takes place the water gas set is out of commission for several days and is not capable of making gas, and for that reason it is necessary to have other sets. The recheckering takes place more frequently than relining. Recheckering takes place at regular intervals because the brick becomes saturated with
1380 carbon and loses its efficiency. This shutting down of the water gas sets for recheckering or relining must not be confused with the daily shut down due to cleaning fires, the clinkering, which occupies an hour or an hour and a half each time and takes place once or twice a day, in some cases three times, according to the way the set is operated.

Q. Now, which is more economical, to have the surplus generator capacity or reserve generator capacity, or to have reserve holder capacity to take care in that way of the interruption of the work of the generators?

A. In general it is more economical to install additional generating capacity than it is to install additional holder capacity. By the installation of additional generator capacity the erection and construction of additional holder capacity may many times be put off a number of years. On the other hand, the erection and construction of additional holder capacity will not allow the putting off of additional generating capacity for possibly more than one or two years. In reducing this to a financial proposition, ordinarily

it is more economical, from a financial standpoint, to put in the additional generator capacity. In the case of the Des Moines plant, in my judgment it would be considerably more economical to put in additional generating capacity, although the necessity for additional holder capacity will not be obviated, as in the course of a very few years, in my judgment, an additional holder will be necessary. Roughly, it would cost about fifty per cent per million feet of capacity, in my judgment, in Des Moines to install additional holder capacity over and above additional generator capacity. I
1381 might add to that, that in my judgment it will be necessary to purchase additional real estate on which to erect the additional holder.

Q. Now, I wish you would state what expenditures, in your judgment, Mr. Beahr, could reasonably be expected as necessary in the near future in order to maintain the property of the complainant up to its present state of efficiency?

Objected to on part of defendants as being immaterial incompetent and irrelevant.

A. In the going value calculation I made an estimate of the future gas sales of the Des Moines Gas Company up to and including 1917, and from those figures I have estimated that the maximum day's send-out in 1917 will be, roughly, three and a quarter million cubic feet per day. The maximum send-out last year was 2,228,000 cubic feet, I believe; but in compiling my estimate of future sales upon which to base my judgment of going value, I kept the estimate of sales conservative so as not to exaggerate the going value. In my judgment, for construction purposes these figures would not be sufficiently safe. I made a rough calculation in a general way of the construction requirements for the next seven years, and in my judgment it will be necessary to purchase additional real estate upon which to erect a new holder. The largest present holder of the company is 1,100,000 cubic feet capacity, approximately, and in my judgment the next holder to be erected should not be less than two million cubic feet capacity. In attempting to place this holder upon the present real estate of the company I found there was no room upon which to erect it, and for that reason, in my judgment, it will be necessary to purchase real estate upon which to erect such a holder. In my further judgment the purchase of additional real estate will be such that if the two million holder were
1382 erected thereon it would practically use up the best part of the available space as the holder is round, and real estate is usually square or rectangular in shape, and for that reason it might become advisable to make the holder a three million cubic feet capacity in place of a two million. I have estimated the real estate which would be required at approximately $92,000. Now, in my judgment, it will be necessary to install additional manufacturing capacity at approximately two million cubic feet capacity, which is one 10 foot 6 generator set, plus certain additional apparatus through the plant, which I estimate to cost $164,000. The three million holder I estimate will cost $250,000, complete. In

my judgment in the next seven years the main mileage will be increased from 50 to 60 miles, or approximately thirty per cent increase over the present mileage. This I estimate will cost approximately $400,000. I have estimated that the approximate increase in population in the next seven years will be 20,000, an increase of about 23 per cent from the present population. On this basis I have estimated that the increased investment in meters and services will be about $150,000, making a total of $1,056,000. Now if it is decided to build a two million holder in place of a three million cubic feet holder, I would deduct from that holder the sum of $75,000, leaving a total of $1,981,000.

Q. Mr. Baehr, will you tell us what reasons there are, if any, in your judgment, why this real estate which is occupied by the manufacturing plant is especially adapted to the uses of this Company?

A. There are various reasons why the real estate is desirable and especially adapted to the use to which it is put. In the first place the plant and ground is above flood line and on that account there is no danger of interruption of the service. In the second
1383 place the track facilities are excellent. The loading and unloading, receiving and shipping material are facilitated very much for this reason. The plant is so located on the Des Moines river that they are able to pump a water supply for general work service by pumping the water from the river and in that way saving money in the purchase of water. The central location of the plant enables the men who are working there to reach it readily, and furthermore, the engineer and superintendent can reach the plant rapidly in case of accident. The location of the plant is very near the center of distribution. This is a highly desirable feature, because it not only shortens the feeder mains required, but also decreases their size and in that way tends towards economy. The area of the plant is well drained, and this is a desirable feature. The plant is so located that men and wagons starting from the feeding shop start practically from the distribution center and that effects a large saving not only in time, but in the cartage of all kinds of supplies, pipes, stoves, fittings, etc. The present real estate has another feature of value, which is that it is large enough for extension of the manufacturing capacity, with the exception that additional ground is needed for the erection of a holder. The general condition of the soil of the real estate is favorable; it is good ground for foundations, not marshy, and does not require tiling. There is one additional feature that I consider is a desirable feature, and that is that the elevation of the plant with reference to the general elevation of the city is such that the plant is below that general city elevation. In a low pressure gas distribution system this is a desirable feature because air being lighter than gas tends to rise and this in a measure overcomes a portion of the friction in
1384 the feeder mains and tends to economy and to good service.

The MASTER: Is that true in the territory south of the Coon?

A. I can't say specifically in that respect. I have in mind the higher portions of the city I have seen.

Q. Now another thing about your Exhibit 21, that is in making your valuations, did you take the widths of the trenches as given in the inventory, or did you rely upon your own judgment and experience as to that?

A. I paid no attention whatever to the inventory in that respect, but used my figures as to the width of trenches.

Q. I think the inventory also estimates the amount of trenching and paving and laying of services, state whether your estimate is based upon that or upon factors determined from your own experience?

A. My estimate is based entirely upon my own experience in that respect.

Mr. GUERNSEY: There is one question suggested with reference to the objection made to Exhibit 21, we might as well clear up before finishing the direct examination of this witness. Among other things, it is objected to as a mere memorandum; if that is to be construed as an objection, we will have to show that. Will you tell us, General Byers?

Mr. BYERS: I have already stated that we do not object to the manner or rather to the form in which the exhibit is gotten up, or that the witness has not dealt with each detail in the exhibit; we waived the requirements, but insist even if that all had been done, still the exhibit would be incompetent for any purpose in this case.

Mr. GUERNSEY: On what is the objection that it is a mere
1385 memoranda predicated?

Mr. BYERS: It is this: you cannot substitute this witness for proof that exists in an original form.

Mr. GUERNSEY: So far as that goes we expect to supplement the testimony of this witness as to the matters which are furnished him by the testimony of people who furnished it.

Mr. BYERS: Of course, that is all a matter for the record and for the court.

Mr. GUERNSEY: As I understand your objection, you make no objection that would not be equally available if the witness had gone through this exhibit item by item and had testified to the reasonableness of each item.

Mr. BYERS: No, I have already stated that; it is in the record.

Judge CARR: As we understand it, there is no objection to Exhibit 21 because of the fact that the witness' testimony or a part of it appears in that form.

Mr. BYERS: That is correct.

Judge CARR: Except as to the substance, you do not object to the form?

Mr. BYERS: That book is not testimony at all; that is my notion.

The MASTER: Of course if the witness' attention had been called to each and every item there would be no question about it; and we have considered it that way; that is the way I understand it.

Mr. BYERS: The only exception I take to that is, still it would not be evidence, but a mere memorandum to aid the court, if it wants to use it.

1386 Cross examination by Mr. BYERS:

Q. Where is your office?

A. My office is in the Peoples Gas Building, corner Michigan Avenue and Adams Streets in Chicago.

Q. On the same floor with Mr. Lea?

A. No, sir; my office is on the twentieth floor and I believe Mr. Lea's office is on the fifteenth floor.

Q. You are in the same building?

A. Yes, sir.

Q. What time in 1910, if at all, did your employment begin for the present company?

A. I spent January 1st and January 2nd of 1911 in Des Moines; prior to that I had never been in the city.

Q. January 1st and 2nd, did you say?

A. Yes, sir of 1911.

Q. Now, on these two days, who of the other engineers did you meet here?

A. I do not recall meeting any other engineer here, Mr. Byers, if you mean somebody outside of the city.

Q. Yes, I mean any of those gentlemen that are now interested in this controversy as witnesses or in any other way?

A. I didn't meet anyone at that time, except Judge Carr and Mr. Read, but no outside engineers.

Q. Now, then, did your employment begin at that time?

A. It began January first, 1911.

Q. And what in a brief way led up to the employment, who did you have negotiations with?

A. On the day prior to January first, 1911, I had a long distance telephone call requesting me to come to Des Moines at once and I left Chicago that evening, arriving here on the morning
1387 of January 1st.

Q. And the long distance call was from the Des Moines Gas Company?

A. It was, yes sir.

Q. And it was in response to that call you came on the 1st of January?

A. Yes.

Q. Now, do you have any employment for the United Gas Improvement Company now?

A. I am not doing any work for the United Gas Improvement Company.

Q. Have you, in the recent past?

A. I do not recall that I have been employed by the United Gas Improvement Company.

Q. You do not remember of such employment?

A. I do not at the moment.

Q. Have you been doing any work for the Companies that are controlled by the United Gas Improvement Company so far as you know?

A. I have done work for the Des Moines Company, and as stated

in my—I don't know what the legal term is—my affidavit, perhaps opening statement, I did some work for the Minneapolis Gas Light Company.

Q. That concern is owned by the United Gas Improvement Company?

A. I am not sure that that company is owned by the United Gas Improvement Company, but I understand they have an interest in that company.

Q. Is that the only one you remember now that you did work for in which they were interested?

A. I might look through that list I had to see whether I did any work in which the United Gas Improvement Company is interested.

Q. Did you work for any of these companies: Allentown
1388 Gas Co.?

A. I have not.

Q. The Burlington Gas Light Company, Burlington, Iowa?

A. No.

Q. Chester County Gas Company, Westchester, Pa.?

A. No.

Q. Concord Light & Power Company, N. H.?

A. I have not.

Q. Connecticut Railway & Lighting Co., New Haven?

A. No.

Q. Consumers Gas Co. Reading, Pa.?

A. No.

Q. Dauphin County Gas Co. Steelton, Pa.?

A. No.

Q. Des Moines Gas Co. Des Moines, Iowa?

A. Yes.

Q. Prior to this present employment?

A. No, sir.

Q. Equitable Illuminating Gas Light Co., Philadelphia, Pa.?

A. No.

Q. Essix & Hudson Gas Co., Newark, N. J.?

A. No.

Q. Fulton County Gas & Electric Co. Gloversville, N. Y.?

A. No.

Q. Georgia Railway & Electric Co. Atlanta?

A. No.

Q. Harrisburg Gas Co., Harrisburg, Pa.?

A. No.

Q. Hudson County Gas Co. Jersey City, N. J.?

A. No.

Q. Kansas City Gas Co., Kansas City, Mo.?

1389 A. No.

Q. Merion & Radnor Gas & Electric Co., Ardmore, Pa.?

A. No.

Q. Minneapolis Gas Light Co., Minneapolis, Minn.?

A. Yes.

Q. New Gas Light Co., Janesville, Wis.?

A. No.
Q. Northern Liberties Gas Co., Philadelphia, Pa.?
A. No.
Q. Omaha Gas Co., Omaha, Nebr.?
A. No.
Q. Paterson & Passaic Gas & Electric Co., Paterson, N. J.
A. No.
Q. Haven't you been retained by the Omaha Company?
A. No.
Q. Pensacola Gas Co., Florida?
A. No.
Q. Peoples Gas Light Co., Manchester, N. H.
A. No.
Q. Philadelphia Gas Works?
A. No.
Q. Public Service Corporation, Newark, N. J.
A. No.
Q. St. Augustine Gas & Electric Light Co.
A. No.
Q. Sioux Falls Gas Co.?
A. No.
Q. Savannah, Gas Co., Savannah, Ga.?
A. No.
Q. Sioux City Gas & Electric Co., Sioux City, Iowa?
1390 A. No.
Q. South Bend & Mishawaka Gas Co., South Bend, Ind.?
A. No.
Q. Syracuse Light & Power Co., Syracuse, N. Y.
A. No.
Q. Vicksburg Gas Co., Vicksburg, Miss.?
A. No.
Q. Waterbury Gas Light Co., Waterbury, Conn.?
A. No.
Q. Wyandotte County Gas Co., Kansas City, Kans.?
A. No.
Q. And the Minneapolis and Des Moines Companies are the only two of that list that you remember?
A. Yes, sir.
Q. You have been in St. Louis several years in connection with the Gas Company's works there?
A. Yes, sir.
Q. And are thoroughly familiar with the gas situation of St. Louis?
A. I am familiar with it up to the time I left there.
Q. I understand you left there about two years and a half ago?
A. I left St. Louis at the end of March 1909.
Q. Now up to that time your employment or rather your engagements had been largely in the operation of gas plants?
A. They have been largely in the operation, and construction also.
Q. Up to the time you left St. Louis and went to Chicago?

A. Yes, sir.

Q. And had you ever had any employment prior to your going to Chicago from any cities or municipalities anywhere with respect to fixing valuations on gas properties?

A. I was not employed by any city or municipality prior
1391 to leaving the employment of the La Clede Gas Light Co., in St. Louis, on rate cases or valuations for rate purposes.

The MASTER: Prior to April 1, 1909?

A. Yes.

Q. In that connection had you been employed prior to that date by gas companies or any other interests for that matter, in the invoicing and placing of value upon gas properties prior to April 1909?

A. Yes, sir; a great many of them.

Q. And about how frequently, in a general way, say over a period of six or seven years just prior to April 1909?

A. I stated——

Q. If you will notice I have in my question, fixing values; I know you stated in your examination in chief you had done a great deal of work, but I do not remember that you stated you had valued gas properties prior to that time?

A. I valued a number of gas properties prior to April 1st, 1909, but off-hand it would be difficult for me to say how many a year.

Q. I have no notion of going into the details or places, but just in a general way I thought I would like to have you give us an estimate of the number?

A. I can do that in the following way: During the time I was employed by the Denver Gas & Electric Company of Denver, Colorado, I made three valuation reports.

Q. On their plant?

A. No, sir, on the plants at Leadville, Colorado, Boulder, Colorado, and Greeley, Colorado.

Q. Those valuations were made for owners of the gas plant or contemplated purchasers?

A. Yes, sir; during the time I was at St. Louis I made valuations on about twelve properties and in addition to that all the gas
1392 plants operated by the Western United Gas & Electric Company. This latter company owns or controls the property at Elgin, La Grange, Aurora, and Joliet, Illinois, and I think about smaller villages in that neighborhood.

Q. And that work was all for gas companies, anyway not for municipalities or cities.

A. Yes, sir.

Q. When you were answering Mr. Guernsey's general questions this morning about this plant, were you using a memoranda?

A. I have some memoranda here, yes sir.

Q. From which you refreshed your recollection as you were making the answers?

A. Yes, sir.

Q. Now, about April, 1909, you went to Chicago and opened up

your office and started in to work as consulting engineer, if I remember correctly?

A. Yes, sir.

Q. Are you a graduate of any technical school of engineering?

A. Yes, sir; I am a graduate of the University of Wisconsin, Madison, Wisconsin.

Q. Was your training there along technical lines in gas engineering or general engineering?

A. The course I took was a civil engineering course; that is the one I graduated from.

Q. Immediately, as I remember, after your graduation you became interested in work about gas plants?

A. It was some three years or two and a half years after graduation before I got into the gas business. That period of two and a half years being occupied to a certain extent by surveying
1393 work, but mostly by drafting and designing work in bridge works.

Q. What year did you graduate up there?

A. In 1894.

Q. So that it would be somewhere between 1896 and 1897, safe to say in 1897, you began your work with the gas companies?

A. The date I believe I stated before is March 1897 when I first went into the gas business.

Q. Up until April, 1909, you had devoted your entire time and energy to either the operation or construction of gas properties for the owners?

A. In the employ of the owners, yes sir.

Q. So that when you went to Chicago to open up your office your intention was, I suppose, to specialize along gas lines, gas engineering lines?

A. Yes, that was my intention although I am doing work in connection with electric light plants.

Q. Now, I wish you would tell us in a general way just about what the employment or work of a consulting gas engineer as the profession is carried on in Chicago, what it is?

A. Well, in a general way, my work covers the reports on gas properties and electric properties for bond houses or purchasers of such properties; the valuation of properties in cases like this one in Des Moines. I am operating two gas plants and one electric plant as consulting engineer; one gas plant at Oshkosh, Wis., a town of about 33,000 people.

Q. Now, just there, who owns that plant?

A. Mr. Edgar P. Sawyer and family of Oshkosh; and also am operating a gas plant at Greeley, Colorado.

Q. Who owns that plant?

A. That is owned largely by Mr. Clarence Darrow, of
1394 Chicago. In addition to that I have done such work—for instance, I am just completing an exhaustive study and survey of gas pressure conditions on Manhattan Island for the Public Service Commission for the First District of New York. I am also building a gas plant for the city of Wheeling at the present time.

Q. Now, these two plants that you say you are operating, do you mean you are superintending the operation of the plants, or what do you mean by saying that you are operating them?

A. Well, the gas plant at Greeley, I am virtually directing the policy of the company, mostly by correspondence because it is a long ways from Chicago; and I am also laying out the improvements as required and if questions of price or anything of that sort comes up they come to my office, and the local managers refer all questions of improvements to me.

Q. And your client in that case is the owner of the plant, Mr. Darrow?

A. Yes, sir.

Q. And what you are doing with respect to additions and improvements and operation and with respect to prices is in his interest or for him?

A. Yes, sir.

Q. Now, at Oshkosh, what do you mean by operating that plant?

A. The Oshkosh Gas Light Company owns and operates the gas plant and electric light and power service of Oshkosh, Wisconsin, and my duties there are to lay out and plan all improvements and in that connection I secure the prices of all the important apparatus and submit them with recommendations to Mr. Sawyer, requesting his approval before finally closing contracts. I also go to Oshkosh frequently, usually once a month and spend one or two or
1395 three days, as may be necessary, during which time I visit the plants and confer with the superintendents and direct them what they shall do; all important extensions are referred to me for advice and approval to see whether they are right or not, and such things as wages of men, even such things as vacations of employés come to my office.

Q. I take it from that employment, the fact that your employment is so general, that you also determnie the price in a way?

A. Of gas you mean and electric light?

Q. Yes.

A. I am just now making a valuation of both gas and electric light properties in Oshkosh for the purpose of determining the rates.

Q. How large is the city of Oshkosh?

A. My recollection is the last census gave it approximately a population of 33,000.

Q. More than one gas company there?

A. No.

Q. This Sawyers company has a monopoly on the gas business?

A. In that city, yes sir.

Q. I mean in that city. What rate are you getting there now?

A. The rate for gas at present is—they use two meters system there; that is, there is one rate for illuminating gas and one rate for fuel gas. It is exactly the same gas but used through different meters for different purposes. The net illuminating rate is $1.25 per thousand cubic feet; and the fuel rate is *is* one dollar net per thousand cubic feet on a sliding arrangement, so that when used in large quantities, the consumer of fuel gas using a sufficient quantity gets

a rate of ninety cents over and above the first twenty thousand feet any one month; I may be mistaken as to the twenty thousand feet; that may be fifty thousand.

1396 Q. What do you mean by net rate, $1.25?

A. If gas bills are paid within a certain time after they are rendered in Oshkosh, the rate for gas in the case of fuel for instance, is one dollar and for illuminating is $1.25, which we call the net rate. If the party does not pay the bill by a certain date the gross rate applies which is a greater rate.

Q. What is it?

A. The illuminating gross rate $1.75; I am not sure of the gross rate for fuel, but I believe it is either $1.15 or $1.25 per thousand.

Q. Can you give us in a general way, without taking time to figure it out, about what average rate the company actually gets in Oshkosh?

A. My impression is that the average rate is something like, well, say somewhere around $1.10 per thousand; that is just my judgment.

Q. Is there a controversy on there now for a reduction in rates?

A. No, sir.

Q. Now the Greeley, Clorado, plant, how big a town is that?

A. That is a town of about 8,500 or 9,000 people.

Q. A small place?

A. A small place.

Q. The gas company there has a monopoly on the gas business?

A. Yes, sir.

Q. What is the rate there?

A. The net rate is $1.50 per thousand through one meter.

Q. Now, is there any other gas properties in which you have an interest either as an operator or a financial interest?

A. I have a small interest in the gas plant at Beloit, Wisconsin.

Q. You mean financial interest?

1397 A. Yes, sir.

Q. Any other?

A. No, sir.

Q. Do you own any stock in any other gas or light company of any kind?

A. No, sir.

Q. This one at Beloit, Wisconsin, is that the only gas company there?

A. That is the only gas company there.

Q. That is a town of about 15,000?

A. I think it is from 15,000 to 17,000.

Q. And the gas company has a monopoly on the gas?

A. Yes.

Q. What is the present rate there?

A. Well, I don't know; I think it is $1.25 but I don't know.

Q. Did you have anything to do with the management of it?

A. No, sir.

Q. Your interest is not large enough?

A. It is very small.

Q. Is that a corporation?

A. Yes, sir; the name is Beloit Water Gas and Electric Company.
Q. So you are interested in it as a stockholder?
A. Yes, sir.
Q. Now, since April 1st, 1909, what has been your employment in a general way without going into the details?
A. Generally, as consulting engineer of gas and electric properties, making valuations and gas pressure reports and building and operating gas plants and one electric plant.
Q. The gas pressure proposition is really your specialty?
A. Why, not necessarily; I think I feel equally competent in gas works as in gas distribution.
1398 Q. How much of your time since April 1909, has been devoted to valuing gas plants?
A. I should say that the majority of my time was devoted to that work.
Q. In fact that was really the first work you did after you opened your office?
A. Yes, sir.
Q. And with whom was your engagement at that time?
A. About the first valuation work that I did was at Atlantic City, New Jersey, Lansing, Michigan, Litchfield, Illinois, Wilmington, Delaware, and Amarilo, Texas.
Q. And that employment was all for gas companies?
A. That was all for the owners or the company.
Q. Now, Mr. Baehr, who is the principal owner of the Belot Company?
A. I believe that company is controlled by a trust company in Cincinnati.
Q. Who besides yourself in Chicago is interested in it, has some considerable interest in it?
A. I don't know.
Q. Has Mr. Cowdery any interest in it?
A. I believe he has, but that is not based on absolute knowledge.
Q. Mr. Cowdery is at the head of the Chicago Gas Company?
A. Mr. Cowdery is the vice president of the Peoples Gas Light & Coke Company.
Q. Now, since April, 1909, have you been employed by any municipality or city for the purpose of making up a valuation of gas properties for rate making purposes—leave out of that now your pressure and all that sort of thing—just rate making purposes?
A. I do not believe I have been employed for such purposes.
1399 Q. Have you since April 1st, 1909, been employed by any municipality or city for any purpose in connection with gas properties?
A. Yes, sir; in the city of Wheeling and the city of Buffalo.
Q. Now, take the city of Wheeling first. If I understand your answer in chief that is a municipally owned plant, that is, the municipality owns the plant?
A. Yes, sir.
Q. And what was that particular service there, that is, what part of the business of the gas plant did you have to do with, what was the nature of your work?

A. At first when I went to Wheeling it was for the purpose of investigating the operating conditions of the gas plant and distribution system and I made a report on that which also embraced the improvements required to put the gas plant and distribution system in good shape.

Q. When you went the next time, what was the purpose then?

A. There was quite an interval of time between the time my report was turned in and the time action was taken by the city of Wheeling, but action was taken this last spring and I am now in charge of building a new gas plant there, overhauling the mains and relaying the services and getting the meters into condition.

Q. Does that general statement cover the only employment you had at Wheeling, or rather the character of your work?

A. Yes.

Q. It was not then in the nature of making up a complete inventory and fixing the value of each particular item and valuing these so-called overhead charges?

A. Not in Wheeling.

Q. Now, Buffalo is the other city?

1400 A. Yes, sir.

Q. When was it you were employed in Buffalo?

A. That is very recently, within two or three months.

Q. That report has not been made yet?

A. That was a report concerning improvements at the gas plant at Buffalo.

Q. I don't want it unless it was valuation?

A. It was not valuation.

Q. In the Wheeling matter I take it from what you say your report covered improvements that would be necessary for some few years in advance of the time you made your report?

A. It covered improvements that I recommended to the city of Wheeling that they make at once.

Q. And did you put the cost of the improvement in your report?

A. Yes, sir.

Q. What items of overhead charges did you include?

A. I included in that engineering and superintendance. I did not set those items aside specifically; I included those in the amount in totals, but contingencies, engineering and superintendence were the items I considered at that place.

Q. No tax and interest or going value or anything of that kind is covered by that report?

A. No, sir.

Q. And no organization or legal expense?

A. None.

Q. Now, those two are the only cities for which you have rendered services with respect to gas properties since April 1909?

A. I rendered services to the city of New York in connection with the Brooklyn Union Gas Company.

Q. I mean in valuation?

1401 A. Yes, there was a valuation of the property in Brooklyn.

Q. When was that work done?
A. That was started last winter and is not finished.
Q. And your report is unfinished?
A. It is unfinished, yes sir.
Q. Now, Mr. Baehr, you first came to Des Moines on the first day of January?
A. Yes.
Q. Had you ever been here before?
A. I had never been in Des Moines before then.
Q. And you were here two days at that time?
A. Yes.
Q. You never bought or sold any real estate in Des Moines?
A. I did not.
Q. You never either was interested as a contractor or bidder or owner in the construction of buildings or anything of that kind in Des Moines?
A. No.
Q. Now, after the second day of January, when did you next come to Des Moines?
A. I next came to Des Moines on February 6th.
Q. That is 1911?
A. That is 1811.
Q. Whom did you meet at that time?
A. I met the officials of the company, Mr. Haines and Mr. Vincent.
Q. Were there any other engineers there, Mr. Lea—I have forgotten the other gentleman's name—Mr. Randolph?
A. I don't remember their being here at that time.
Q. When did you first meet with them, if you did at all,
1402 after your employment, where was the meeting?
A. I believe in Chicago; the exact time I cannot give you, but it was early in the year.
Q. Who was present?
A. There were present various gentlemen from the United Gas & Improvement Company, Mr. Lea and I believe Mr. Randolph.
Q. Any other engineers besides Mr. Lea and Mr. Randolph that you now remember?
A. None outside of the men from the United Gas Improvement Company.
Q. The men I mean from there, if you can give me their names?
A. Mr. Klump and Mr. Heminger were the engineers from the United Gas Improvement Company.
Q. Was counsel for the company present?
A. Yes, sir.
Q. Can you give me some idea of the date, how soon it was after the first of the year?
A. I am sorry I cannot give you that, but it was early in the year.
Q. Was it in the month of January?
A. I believe it was in the month of February; I am not sure of that.
Q. At any rate, it was early in the work?
A. Yes, sir.

Q. Now, at that conference or meeting of counsel and engineers were you advised as to the character of the controversy that was on here and the purpose of this gathering of engineers and their employment, and so on, in a general way?

A. I had been advised in a general way of the nature of the controversy prior to that.

Q. That is, by some person connected with the Des Moines Gas Company that informed you?

A. When I was here on the first and second of January I
1403 understood the matter involved was a rate regulation case.

Q. Were you informed in a general way as to what the range of contention was?

A. My understanding at that time was that the city had passed an ordinance fixing the price of gas at ninety cents.

Q. And you understood that the rate in force at the time of the passage of the ordinance was a flat rate of one dollar?

A. I understood the rate was one dollar net.

Q. With the usual penalty for failure to pay on or before the 15th of the month?

A. Yes, sir.

Q. Were you also advised by somebody in connection with the Gas Company that the controversy had reached the courts and that the valuation and estimates were for the purpose of using them in a law suit and as evidence?

A. I understood that in a general way, yes sir.

Q. Now at this conference of counsel and engineers did you take up the question of these so-called intangible values, like going value and taxes and interest and pavements and so on?

Objected to on part of the complainant as not competent because it is a conference with the witnesses and their counsel and their clients and no matter that was gone into on the direct examination at all and not a proper subject of cross examination. I may say, if your honor, please, Mr. Read and Judge Carr and myself were all present at this conference. It is rather a remarkable cross examination.

The MASTER: I think it is competent to show the fact.

Mr. GUERNSEY: The record may show that we have not put any witness on the stand without conferring with him about
1404 the subject matter of the testimony.

Mr BYERS: It is proper and competent in this way, and has been so held. It is entirely proper for us without and reflection upon counsel or the witness, and I do not want anybody to get the notion that the question is for the purpose of in any way reflecting upon anybody, but it is perfectly competent and proper in view of the fact that here is an element that the men of this profession say has been of uncertain proof and standing and it is an element of value that has only recently been worked out; now it is entirely proper for us as bearing upon the weight of the evidence of this witness to show that the result of that conference was a sort of general understanding to proceed along certain lines in fixing these valuations; that goes

to the weight of the testimony of this witness and don't affect their probity.

The MASTER: So far as this question is concerned, I haven't any question about it.

Last above question repeated.

A. There were a great many things discussed and I believe, among others, that there was some discussion on the features you mention.

Q. Now, you understood at the time too, Mr. Baehr, I assume, that Mr. Lea had employment in this same matter that you had been employed in?

A. Yes.

Q. And for the same purpose and that his work was to cover the same field?

A. I presumed it was at that time.

Q. And Mr. Klump, you knew that he was probably employed for the same thing?

1405 A. Mr. Klump is with the United Gas Improvement Company. I don't understand that he was employed in the same way that Mr. Lea or myself were.

Q. You understood, however, that he was interested in the same matter in the same work that you were to cover whatever his employment might be?

A. I presume so, yes.

Q. And he has been here right along and checked up this work?

A. I don't know what checking he has done, but he has been here.

Q. Now, in that conference at Chicago, was Mr. Alvord present?

A. In the conference I had in mind, the first one, held early in the year, Mr. Alvord was not present.

Q. Was he during the winter some time?

A. There was a conference at which Mr. Alvord was present.

Q. When was that held?

A. I can't tell you exactly, but it was subsequent to the first one.

Q. Can you give us some idea how long it was afterwards?

A. I think it was subsequent to the first of March.

Q. Was it as late as April?

A. I would be unable to say. I think I can say definitely since the first of March; that is as far as my recollection carried me.

Q. Was it after the reports had been worked out and about ready to be put in form?

A. It was during the time my report was being worked upon.

Q. At this second conference, were these other engineers present besides Mr. Alvord?

A. I believe there was another conference at which Mr. Randolph, Mr. Alvord, Mr. Lea and myself were present.

1406 Q. Was Mr. Benezt Williams there?

A. No, sir.

Q. Was Mr. Haganagh present at either conference?

A. Mr. Haganagh I believe was for a short time at one of the conferences, but a very short time.

Q. First or second one?

A. I don't know about that; I am not sure on that.

Q. Where were these conferences held in Chicago?
A. At the hotel.
Q. Was Mr. Douthirt present?
A. Yes, Mr. Douthert I think he was at one of the conferences I am sure of; I am not sure that he was at both of them or all of them?
Q. At the hotel?
A. At the hotel.
Q. At the La Salle Hotel?
A. No, sir; the Blackstone.
Q. Now at this first conference Mr. Baehr, had any part of the engineers' reports, that is covering valuation, been made up?
A. Are you referring to my report, Mr. Byers?
Q. Any, yours or any others.
A. No, there was an inventory ready.
Q. That is the inventory of the items without any valuation you mean, something like is contained in Exhibit 15?
A. Yes.
Q. That had been made up so that you had it there at this conference?
A. Yes.

Q. Now at that time, do you remember whether any of the
1407 engineers had their figures so that they were presented at that conference?
A. I think there were some figures discussed.
Q. Didn't one of the engineers at that meeting state figures and valuations he had worked out on this plant?

Objected to on part of the complainant for the reasons last above urged and as immaterial and not cross examination; he is asking for what took place at this conference.

The MASTER: I think that is competent and proper cross examination, both.

Last question repeated.
A. There were some figures discussed and I believe, of course, in order to discuss them they were stated.
Q. Can you tell us what the figures that were stated and discussed referred to particularly?

Complainant interposes the same objection as last above.

A. They referred, as I recall it, to such matters as cost of brick work, cost of concrete, cost of lumber and carpenter work roofing and such matters.
Q. Now, were those figures stated by a consulting engineer as you remember it, I am not caring about the name of the person?
A. No, sir.
Q. You say it was not a consulting engineer?
A. No.
Q. Was Mr. Haines present?
A. I believe Mr. Haines was there, but I am not sure of that.

Q. Was it anybody that was entirely outside of this controversy and who is not here either as a witness or advisor?

A. No, it was not anybody outside.

Q. It was somebody interested in the controversy?

1408 A. Yes, sir.

Q. During that conference—we are dealing with the first one—was the question of the price of gas discussed in a general way I mean now by the engineers and by the other gentlemen present?

Complainant interposes the same objection last above made.

A. I do not believe there was any discussion about the price of gas, except there must have been some remarks that the city wanted to reduce the rate to ninety cents; but I don't remember any discussion about that.

Q. I suppose there was something said about the importance of the valuation as it related to prices.

Complainant interposes same objection last above made.

A. I do not believe there were any statements of that kind made.

Q. I don't mean now that anybody said you will have to fix a particular valuation in order to support our contention; I am trying to get a picture now from the beginning to the end of your mind and the things that may have influenced you when you come finally to fix a judgment and determine the fact; that is all I am trying to do, to get that before the Master's mind and my own, simply to weigh the testimony.

Complainant interposes the same objection last made.

A. The only statement I recall at any time concerning that, it was told me what the Company desired in this matter was to *to* know the fair value of the property; they wanted to know what the fair thing was, what was right and fair; that is all I recall.

Q. When that was stated did those several engineers that have taken part in making up the valuations and invoice discuss valuations along those lines at that conference?

Complainant interposes the same objection last made.

1409 A. At that time the things that were discussed were the prices of these particular classes of work, construction work. I have enumerated.

Q. Now, Mr. Baehr, you understand very readily this, I think that if several engineers were to deal with this property for the purpose of arriving at a valuation, the valuation later to be used in the trial of a case as evidence, that you would not proceed along entirely different lines, at least you would want to know before you started where you were all going to end?

A. I would think so.

Q. That is what I am trying to get at, not what was said and done, but was that line of discussion carried on in that conference in a general way?

A. I should think in a general way the discussion would trend along fair values, etc.

Q. Was there anybody present at that conference, any engineers aside from Mr. Alvord who made up a report of valuation that is not here present and has not been here during this session?

Complainant interposes same objection last made.

A. I never saw a complete valuation of this property outside of the valuation that there has been offered here by Mr. Lea and my own.

Question repeated.

Complainant interposes same objection last made.

Q. Let me put the question in a different way: How many engineers do you know that have made up a report fixing a valuation upon the property of the Des Moines Gas Company for the purpose of this controversy?

A. I know of three engineers, Mr. Randolph, Mr. Lea and myself.

Q. Were there any made by any other engineers?

1410 A. There were some figures made; whether they were completed or not, I don't know, by two other engineers.

Q. Who were they?

A. Mr. Klump and Mr. Heminger.

Q. Is Mr. Heminger connected with the United Gas Improvement Company.

A. Yes, sir.

Q. He is from that establishment?

A. Yes.

Q. Were there any others?

A. No, other engineers that I know of.

Q. The real question I am trying to get at, did an engineer, no other person, at the first or second conference make up a report of the valuation of this plant that is not here among these men you mentioned?

A. I don't think so. If there was, it is a failure of my recollection.

Q. Passing that conference for a few minutes, when after the second day of January did you come to Des Moines again?

A. On my next visit I arrived here Februart 6, 1911.

Q. And how long did you stay?

A. I stayed till February 8th inclusive, a total of three days.

Q. Was that visit the one that began on the 6th of February for the purpose of checking up the invoice to satisfy yourself as to what was there?

A. I started to do that work at that time.

Q. On the 6th of February?

A. Yes, sir.

Q. You were here until what date?

A. To the 8th inclusive.

Q. Did you come here on the morning of the 6th?

1411 A. Yes, sir.

Q. You left Chicago the night before?

A. Yes, sir.

Q. So you were here then three days at that time?

A. Yes, sir.

Q. Were there any other persons working at the same kind of work you did during these two or three days here? I don't mean repairers or day laborers, I mean engineers?

A. I don't think there was anybody here but my own man and myself at that time.

Q. Then you returned to Chicago?

A. Yes, sir.

Q. When did you come back again?

A. I arrived here on the morning of February 22.

Q. You are speaking now of the same year all the time?

A. Yes, sir; the year 1911.

Q. How long were you here that time?

A. I was here until March 9th inclusive.

Q. Did you get here just as you did before, in the morning?

A. Yes, sir.

Q. So that you put in eleven days?

A. No, sir; I put in at that time sixteen days in Des Moines.

Q. Counting Sundays and all?

A. Yes, sir; I worked Sundays.

Q. During those sixteen days you were checking up, measuring and proving the measurements and so on?

A. Yes, and was also working on the figuring.

Q. You did part of your work of making up your final report here in Des Moines during those sixteen days?

A. Yes, sir.

1412 Q. Did you have your office force or some of your office force here with you at that time?

A. I had one man here at that time.

Q. I mean not in your engineering department?

A. This was a young engineer, done engineering work.

Q. Now during those sixteen days were there of the other engineers who had placed valuations on this property present at any of this time doing the same class of work?

A. Yes, sir.

Q. Who was here?

A. I recall Mr. Lea was here.

Q. Anybody else?

A. I believe Mr. Randolph was here, but my recollection is not clear on that point.

Q. Did you use the Company's office or hotel for work, all of you?

A. I did most of my work at my room in the hotel.

Q. And the others some at the hotel and some at the office?

A. I don't know where they did their work, but they were at the hotel, Mr. Lea was.

Q. You all stayed at the same place while here?

A. Yes.

Q. Mr. Lea was working on his report during those sixteen days?

A. I believe so, yes, sir.

Q. When did you come back again?

A. On the morning of July 8th, 1911.
Q. For what purpose did you come at that time?
A. I have been here continuously since then.
Q. You came here to attend this trial?
A. Yes, sir.
Q. Then prior to July 8th you made three separate trips
1413 to Des Moines?
A. Yes, sir.
Q. The first one lasted two days, the second one three days and the third one sixteen days?
A. Yes, sir.
Q. Twenty-one days altogether?
A. Yes, sir.
Q. That covers your time in Des Moines from the time of your employment up to the first of July?
A. Yes, sir; up to the first of July.
Q. Now, when you came here the first of January, I suppose you met Mr. Haines first?
A. I did.
Q. I wish you would give to the reporter in as brief a way as you can and yet give us the facts, just what information, I don't mean about the law suit, but just what information he gave you the first day you was here with respect to the property?
A. The first day I was here Mr. Haines and myself visited the gas plant and made an inspection of the gas plant, and we also drove around the city to the outskirts in two or three directions. During this day we discussed the apparatus at the plant and the sizes——
Q. Now, Mr. Baehr, if you will accommodate me by confining as far as you can your answer to Mr. Haines' statement about the property—when you say we discussed, we can't tell who suggested the matter.
A. He told me the capacities of the holders and the number of miles of main pipe, the number of services and the number of meters and also a very brief description of the real estate owned by the company.
1414 Q. That was the first day?
A. Yes, sir.
Q. Was that information given to you in writing, did Mr. Haines reduce it to writing so that you had a memoranda to take away with you?
A. I think I made my own memorandum from his statements.
Q. But there was a memoranda taken, either he furnished it to you or you jotted down what he told you?
A. I believe I took a memoranda down myself.
Q. And that covered the capacity of the plant and miles of main and number of services and the real estate and the number of meters, can you think of anything else any other information furnished you by the company at that time?
A. Mr. Haines gave me, as I recall it, what in his judgment was an approximate value of the real estate.
Q. I think the testimony shows that the real estate had been

appraised before the first of January; wasn't what he told you the value the appraisers had fixed on it; that they had appraised it at so much?

A. Not at that time as I recall it; I don't think so.

Q. Then what other items of information, if any, was furnished to you either by Mr. Haines or any other person for the Gas Company?

A. I believe it was Mr. Haines who gave me what he considered an approximate valuation of the office furniture and fixtures and stable equipment.

Q. Anything else?

A. Yes, I believe I was furnished with a statement of the rate of taxation for 1910 in Des Moines.

Q. Well, was that furnished by somebody for the Gas Company?

A. Yes.

1415 Q. Now any other item you can think of?

A. That is all I recall at the moment.

Q. Now, then, when you came back on the 6th of February, what information or statement of any kind was furnished to you by the Gas Company, by Mr. Haines, or anyone else for the Company?

A. I believe it was at that time I was given a copy of the inventory of the property of the Gas Company.

Q. Is that the book that has been marked Exhibit 15?

A. Yes, sir.

Q. And anything else besides that Exhibit 15, at that time now, between the 6th and the 8th?

A. It is hard for me to recall just when I got some things that were given to me, but I believe I was furnished and I know I requested to have some statements prepared for me of the various purchases of material of certain kinds that the Company had made in recent years, and the cost of laying the services and that sort of thing, and I believe some of those things were furnished to me in the days that you mention.

Q. If they were furnished to you they were furnished in writing?

A. Yes, sir.

Q. And you took them away with you to your Chicago office?

A. Yes, sir.

Q. To be used in formulating your final report?

A. I used them for the purpose of forming a judgment on portions of the report.

Q. Now, in this last answer, as I have it, you were furnished a statement showing the purchases of material?

A. Certain kinds of material.

Q. What kinds, can you name the kinds?

A. I requested that a careful statement be prepared for me

1416 showing the purchases of cast iron pipe for the past five years; also a statement showing the purchases of screw pipe; that is, either steel or wrought pipe.

Q. Where the ends are put together with threads?

A. By screw threads. Also a statement of the cast iron specials purchased.

Q. What do you include in cast iron specials?

A. By cast iron specials I mean such cast iron pipe, fittings, T's crosses elbows, plugs drips and things of that kind.

Q. Drips line and side pots?

A. Yes, sir. I also requested a statement of the prices paid for small fittings, that is, fittings which we use on screw pipe. I also requested a statement of the cost of laying services for the past five years.

Q. Do you mean the labor cost?

A. The thing I requested there was a statement showing for services the cost of material and the cost of labor. I also requested a statement of the amount of the store room expense this Company incurred; in other words, what it cost them to operate their store room as expressed in the percentage of the cost of the material handled. I also requested information as to construction carried on at the plant at various times.

Q. For a period of five years?

A. That information extended back further than five years. I also requested a statement of the operating expenses of the Company.

Q. For how many years?

A. For about five years. I also asked for a statement of the amount of gas made each year for a number of years back; the amount of gas sold each year; the unaccounted for gas and a statement of gross income.

1417 Q. For how many years?

A. I requested that for five years or more and got it that way. And the operating expenses for the same period and taxes paid.

Q. Actually paid?

A. Yes, sir. I believe that covers the requests I made.

Q. Were all of these requests complied with by the Company and the information furnished to you in memoranda form that you asked for?

A. I believe I have all the information in memoranda form.

Q. That you took with you to your Chicago office and used it in making up your Exhibit 21?

A. Yes, sir.

Q. Now, when you returned for your last trip prior to the commencement of this proceeding, what information, if any, further than what you already related did you get from Mr. Haines or anyone else for the Gas Company?

A. I think some of the information I have just enumerated was given to me at that time.

Q. Without respect to the time when the information was furnished you will you please state in the record what other information at any time of any kind, if any, with respect to the character of the Company's property, the quantity of the property, the cost of it, the gross revenue, the net revenue, or any other fact in con-

nection with the property, was given to you by Mr. Haines or some person for the Company?

A. I have a map showing the extent of the distribution system, also a map of the city of Des Moines on which I indicated the three districts into which I divided the city for the purpose of computation in my report, and I believe I have two blue prints giv-
1418 ing data in the form of curves as to the past history of the Company.

Q. How was this all furnished, what you stated in this last answer, to you by the company?

A. Yes, sir.

Q. And were those two blue prints the blue prints that correspond and represent the same things as the curved sheets in Mr. Lea's report?

A. Those blue prints I have, give the facts only up to December 31, 1910.

Q. Up to that time they correspond and represent the same information or facts as are represented by Mr. Lea's two curve sheets in his report?

A. I believe they do.

Q. Now, is there anything else, any other information of any kind or any fact that you remember that was furnished to you by the Gas Company or any one for them?

A. I don't recall anything at the moment; there may be.

At this time an adjournment was taken until 1:30 p. m.

1419 1:30 p. m., TUESDAY, *August* 1, 1911.

WILLIAM BAEHR continued on cross examination by Hon. H. W. Byers, testified as follows:

Q. During the noon hour, Mr. Baehr did you think of anything else in the way—you remember what the last question was?

A. You asked me whether there were any other things I could think of which the company had given me. I have found some more Mr. Byers. There is a third blue print of development cur-es. I was under the impression there was only two, but there are three. Then I have a statement showing the average candle power, average heat value and dew point during the year 1910. Then I have some sets of prices, that is they are typewritten lists or unit costs of day work in Des Moines furnished by contractors, one by the name of Mardis and one by the name of Weitz. Then there is a detailed statement of gas sold from 1904 to 1910 inclusive by years. Then there is a statement of the history of the price of gas. There was also furnished a statement of holder cost for the past three years. Also a statement of gross revenue, operating expense, taxes and net earnings for the years 1887 to 1910 inclusive. A statement of gas sold from 1888 to 1910 inclusive by years. A statement of the population of Des Moines in 1880, 1890, 1900 and 1910. A small schedule of quantity and cost of coke and oil used in manufacturing gas. A statement of profit and loss for the years 1907, 1908, 1909 and 1910. A statement giving the record of mains laid by sizes

and for each of the years from 1888 to 1910 inclusive. A statement of the number of governors.

1420 COURT: What is that?

A. They are a small device for regulating pressures ahead of the meters. They are employed on services connected to the high pressure line. A statement of the working capital as of December 31, 1910. A statement giving consumption of meters by districts, meaning the districts used in my report. A statement giving the cost of laying mains and services divided into details for labor and material for some years past. A copy of a letter from a local contractor as to the cost of resporing pavements. A study of various methods of figuring life and age and depreciation. A statement of the cost of meters. A statement of the number of feet in size and mains in each of the districts. Those are the things.

Q. May I have that list just a moment?

A. Yes, sir.

Q. Now Mr. Baehr were all of the items covered by your last answer furnished to you by the company or some person for the company?

A. Yes, sir.

Q. And how many, if any, of the items covered by your answer did you request?

A. I believe I requested all of them.

Q. And your purpose in doing that was to get such information as you could to aid you in fixing the value of the property?

A. Yes, sir.

Q. Now this third blue print showing development by surves was that a blue print that corresponded and represented the same thing as is shown by the curve sheet No. 3 in Mr. Lea's report?

A. I can't say whether it corresponded to curve sheet No. 3, but I have three blue prints.

1421 Q. There are three curve sheets in his report are they not?

A. Yes, sir.

Q. And the last curve sheet that you refer to here the third one, did that extend beyond the year 1910?

A. It did not.

Q. Well would it be correct for me to say that then up to the year 1910 the blue print that was furnished to you does correspond with and represents much the same thing that is shown by Mr. Lea's curve sheet the third one in his report?

A. I believe so including the year 1910.

Q. I suppose to the 31st of December, 1910.

A. Yes, sir.

Q. Now the price list or price memorandum that you say was made by Mr. Mardis or by Mardis and one by Weitz, that was furnished you by the company.

A. Yes, sir.

Q. And not by these gentlemen that you named?

A. No, sir; these partisular lists were furnished to me by the company.

Q. And the history of the price of gas was furnished to you by the company?

A. Yes, sir.

Q. How early in your employment?

A. Well I didn't keep the dates on which I received them but I got some on my second visit and some on my third visit.

Q. Well I suppose this history of the price of gas, I suppose you mean by that the history of the local plant?

A. Yes, sir.

Q. Not the general history of the price of gas generally, but confined to this city.

1422 A. Yes, sir.

Q. And this plant?

A. Just simply a statement of the different prices at different times in Des Moines for gas.

Q. Do you remember the earliest period stated in the history?

A. I do not but I can find that out.

Q. You don't remember it now?

A. I don't remember it no sir.

Q. And the history was carried down I suppose to the dollar rate?

A. Yes, sir.

Q. You have stated in response to a question, and I hardly think the question was entirely fair, the things that might be involved in it. I suppose you did not request this blue print did you?

A. No, I did not request these blue prints, they were made up and given to me.

Q. Some of the other engineers made these and the company handed them to you or had them sent to you?

A. Yes, sir.

Q. The detailed statement of the gas sold from 1904 to 1910, you did request that did you?

A. Yes, sir.

Q. And the reason you did was because it was very important to have it in order to make up an intelligent estimate of the value of the property in this city?

A. Yes, sir.

Q. You regarded it as one of the important facts necessary to be known in advance?

A. I did, yes.

1423 Q. And the history of the price of gas you regardee that as important too?

A. I did.

Q. Now the holder cost past three years, I take it you mean by that the cost of gas in the holder and not the cost of the holder itself?

A. I mean the manufactured cost of gas in the holder.

Q. You requested that information from the company?

A. Yes, sir.

Q. Because you regarded that as information that was necessary to form an intelligent estimate of the value of the plant.

A. Yes, sir.

Q. Now the gross revenue and operating expenses—I will start with gross revenue. You asked for that information?

A. Yes, sir.

Q. And did you indicate in your request the period over which you wanted the information to go?

A. I believe my request was verbal and was to the effect that I would like to get a statement of the gross income for the past five years and as many years prior as I could get it.

Q. You don't distinguish at all or don't mean the gross income as distinguished in revenue in any way do you?

A. No, sir.

Q. They mean the same thing as you used them, you used gross revenue here that is the reason I did.

A. Yes, sir.

Q. You requested that information because that was not only important but a necessary thing to know in order to arrive at an intelligent and correct judgment of the value of the property of the company?

1424 A. Yes, sir.

Q. Now do you remember without going to your memorandum the period covered by the statement that the company did furnish you?

A. My impression is it was from 1887 or 1888 up to and including the year 1910.

Q. Was that in the form of a sheet made up showing the gross revenue for each year?

A. Yes, sir.

Q. Giving the years you mention. Now operating expenses, did you request information as to that item?

A. Yes, sir.

Q. And over what period of years?

A. For the past five years and as many years prior as they could give me.

Q. When the company furnished it, what period did it cover?

A. My recollection is that that particular statement under consideration covered from about 1887 or 1888 up to and including the year 1910.

Q. And was the information written upon a sheet showing annual operating expenses?

A. It was typewritten on a sheet.

Q. For each year?

A. Yes, for each year.

Q. You requested that item because you regarded it as not only important, but necessary in order to make up an intelligent judgment of the value of the property?

A. Yes, sir.

Q. Now taxes, what period did the information given you cover as to taxes, how many years?

1425 A. I believe the same period, that is from about 1887 or '8 up to the year 1910 inclusive.

Q. And was that information furnished to you in writing by the company?
A. Yes, sir.
Q. And why did you want that information?
A. For the same reason, that I wanted it in compiling portions of my report.
Q. In other words to make up an intelligent and safe estimate of the value of the property of the Des Moines Gas Co., you deemed it necessary to know what they had been paying in taxes in Des Moines?
A. Yes, sir.
Q. Covering a considerable period of the life of their plant?
A. I don't know, for at least five years.
Q. And that information was made up in typewritte- form the same as the other?
A. Yes, sir.
Q. I find here another item, net earnings 1887 to 1910. Did you request that information?
A. Yes, sir.
Q. Was it necessary for you to have that information from the company?
A. Yes, sir.
Q. After you had been furnished with the gross revenue and operating expenses and taxes?
A. Well I could have made the deductions of course myself, but while they were making up the statement I asked them to——
Q. Just as w-ll carry it to the limint and make it complete, that was your notion?
1426 A. Yes, sir.
Q. And I take it you regarded the item of net earnings as important and necessary to a proper valuation of the property?
A. Yes, sir.
Q. Now that item was furnished in the same way the others were furnished?
A. Yes, sir.
Q. And covering the period you state from 1887 to 1910?
A. Yes, sir.
Q. The last day of 1910?
A. Up to and including the year 1910?
Q. The next item you have here is gas sold from 1888 to 1910 Did you request that information from the company?
A. Yes, sir.
Q. And for the same reason as stated as to the other items?
A. Yes, sir.
Q. That item is necessary as to the amount of gas sold over a given period of years, is a necessary item in arriving at a valuation of the property.
A. Yes, sir.
Q. Now population of Des Moines for the years 1880, 1890, 1900 and 1910, was that information furnished by the company?
A. It was.
Q. To you?
A. To me, yes.

Q. In memorandum form?
A. Yes, sir.
Q. Did you request it?
A. I did.
1427 Q. And why?
A. For use in connection with my report.
Q. Did you regard that information as important and necessary in fixing a value upon the property of the Des Moines Gas Company plant?
A. I did.
Q. Schedule of manufacturing cost. Just what do you mean by that Mr. Baehr?
A. By that is meant the cost of coke and oil used in the manufacture of gas.
Q. I didn't give you all of the item, I guess it is schedule of manufacturing cost, quantities used and cost of same? That is all limited to the items of coal and oil is it?
A. It may include the coal used under boilers, but it does include coke used in the water gas generators and the oil used for making gas.
Q. What period of time did that schedule cover?
A. Some three or four years from 1910 backwards.
Q. There was set out in that schedule was there in the form of memorandum the quantity of coke and oil used by the Des Moines Gas Co., and the original cost of it.
A. Yes, sir.
Q. Did you ask for that information?
A. I did.
Q. And did you state the period for which you desired the information?
A. I believe I requested that the price of materials for the past three or four years would suffice for my purpose?
Q. Did you regard it as important and necessary to?
A. Yes, sir.
1428 Q. And it was furnished you as these other items have been by the Des Moines Gas Co.?
A. It was.
Q. Now the next thing you have here is statement of profits and loss for the years 1907, 1908, 1909 and 1910. Did you ask for that statement?
A. I don't recall whether I asked for that particular statement or not.
Q. Was it furnished to you by the company?
A. Yes, it was.
Q. Did you regard it as important in making up your valuations?
A. I am not so sure whether I requested that from the standpoint of regarding it as important or not.
Q. But you have it among your files?
A. Yes, sir.
Q. Just as it was furnished to you by the company?
A. Yes, sir.

Q. Now the next item is record of mains laid by sizes and years 1886 to 1910. Was that information furnished to you?

A. It was.

Q. Did you ask for it?

A. Yes, sir.

Q. To whom did you direct your request?

A. To Mr. Haines.

Q. On one of your early trips to Des Moines?

A. I think I must have asked for that very early in the proceeding.

Q. Why did you ask for that?

A. For the reason I needed the information in compiling portions of my report.

Q. Wouldn't it have served the same purpose if you had
1429 been simply furnished with the number of feet or miles of main in use by the Des Moines Gas Co.?

A. No, sir.

Q. It was absolutely necessary that that information be in detail as to the number of miles or feet of main laid each year, the size of the different pipes and the character of the pipe itself, is that right?

A. The character of the pipe itself I determined from conversation, but the other features you mention were necessary.

Q. However you determined it it was necessary that you know whether it was cast iron or steel or sheet iron or what ever might be used?

A. Yes, sir.

Q. Would you have been satisfied as an engineer to have made up and furnished an estimate of the value of this plant without this information from the company?

A. No, sir.

Q. And when did you first get it?

A. I began to get information on January 1st.

Q. Do you remember when you got this first as to mains?

A. No, sir; but I think that was probably along in February or March.

Q. About the time that you got the maps and distribution statement.

A. Yes, sir.

Q. Do you still have that memorandum?

A. Yes, sir.

Q. Did you get this information Mr. Baehr prior or subsequent to meeting at the Blackstone in Chicago?

A. I believe most of the information was secured subsequent to the first meeting at the Blackstone Hotel.

1430 Q. I suppose I am safe in saying that the same information with respect to mains was furnished the other engineers at the same time?

A. I can't say as to that.

Q. You don't know about the fact?

A. I don't know.

Q. You haven't talked that over with them to know whether they did in fact have that information or not which was furnished to you?

A. I did not.

Q. Now that memorandum will show first the number of miles or feet of mains laid by the Des Moines Gas Co.?

A. Yes, sir.

Q. Next it will show the size of each main?

A. Yes, sir.

Q. And the year in which that particular pipe was laid?

A. Yes, sir.

Q. Covering the period from 1888 to the 31st day of December 1910?

A. Yes, sir.

Q. Now in connection with that, did you have furnished to you or did you ask for the cost of the main?

A. I did.

Q. As you did the cost in other places here, and was that furnished?

A. There was a statement furnished to me of the cost of laying the mains, giving the details of labor and material for several years past.

Q. Was it a part of this same memorandum that had the number of miles of mains and sizes and so on?

1431. A. I believe not, I believe that was on a separate sheet.

Q. And that you have not in this list have you?

A. I believe I have. I believe I have included somewhere in that list the cost of mains and services.

Q. But anyway you don't think it was in this memorandum that we just now have under consideration?

A. No, sir; I believe it is on a separate sheet.

Q. You regarded this information I take it as highly important and necessary?

A. Yes, sir.

Q. And would not be satisfied to make up valuation upon any gas property or gas plant without that detailed information?

A. No, sir.

Q. Now number of governors, that I suppose was simply one of the details of the material or rather the apparatus or pipe used and that was furnished the same as all this other and at your request?

A. Yes, I asked for that information although I did not deem it as necessary perhaps as some other.

Q. Working capital December 31, 1910. Did you ask for that?

A. Yes, sir.

Q. And why?

A. In order to assist me in formulating my judgment for an allowance of working capital of the company.

Q. In using the term working capital, just what do you mean?

A. I mean the amount of money invested in stores and supplies and a certain amount of cash over and above that.

Q. In other words stock and material on ha-d not in use and whatever cash the company was carrying and using for discounting bills and that class of business.

1432 A. Together with a consj-eration of accounts payable and accounts receivable.

Q. That is to say if they had accounts payable on the 1st of January of $10,000 and accounts receivable of $30,000 both good you would call the difference part of the working capi-al?

A. Yes, sir.

Q. Which would be $20,000 in that item?

A. Yes, sir.

Q. You got that information for that one year, December 31, 1910?

A. Yes, sir.

Q. And when the information came to you it showed the material in stock *on* on hand, the stock as distinguished from material which would mean stoves and fixtures and that class of property and bills receivable and bills payable and cash in the drawer.

A. I think it showed accounts receivable and accounts payable in addition to the material and the cash.

Q. Instead of bills receivable and bills payable?

A. Yes, sir.

Q. Do you remember how much that was on December 31st?

A. Total of the working capital at that time?

Q. Yes. Total of these items you call working capital.

A. My impression is that statement shows statemen*d* in excess of $141,000.

Q. At any rate it was furnished to you by the company in a written memorandum of some kind and you used it in working out your report?

A. Yes, sir.

Q. The next item here is consumption of meters by dis-
1433 tricts. Do you remember just when the scheme of dividing the city into districts originated and who originated it?

A. According to the best of my recollection that was developed about the latter half of February.

Q. And was it your plan or somebody else's?

A. I believe that resulted as the result of a discussion concerning that exhibit.

Q. Among the engineers?

A. Among the engineers.

Q. It was finally determined that would be a good way to work out the proposition and you adopted it?

A. Yes, sir.

Q. Was that accomplished at this conference in Chicago, the second one at the Blackstone Hotel?

A. I believe we decided on a division of the city into districts while in Des Moines.

Q. Earlier than the meeting at the Blackstone?

A. My impression is that this was some time during the latter half of February.

Q. And after that had been worked out among the engineers and the other interested parties then the company furnished the information by districts?

A. Concerning meters yes.

Q. Yes, I mean concerning the consumption of meters, I suppose that means the gas measured by the consumers' meters?

A. Yes, sir.

Q. And nothing else?

A. That is it.

Q. Now in this item of consumption of meters by districts was that memorandum made up showing the number of meters
1434 and where *and where* they were in use or did it just give the number as *som* many and amount consumed as so much?

A. I believe that memorandum gives the number of meters in each district and there are some computations on it which result in final figures showing average consumption per meter in each district as distinguished between regular and prepayment meters.

Q. Do you know whether that includes the consumption of gas by the street lights?

A. No, sir; that refers entirely to the consumption of gas by consumers' meters as I understand it.

Q. In buildings and not by either street lights or any other outside illuminating scheme.

A. My recollection is that refers to meters only.

Q. Now that information you regarded as important and necessary.

A. I did.

Q. To an intelligent and safe valuation of the property did you?

A. Yes, sir.

Q. Now we have the item I guess that we were talking about a moment ag*i*, cost of laying mains and services. Did you request that information?

A. Yes, sir.

Q. Why?

A. I wanted to make a careful study of the cost of laying mains and services in Des Moines as the result of which study I could form my judgment upon which to base the reproduction value in my report.

Q. In other words, you deemed it as absolutely necessary to be informed as to the cost of all material and all labor about the gas plant in the city of Des Moines in order to determine what
1435 a gas plant in that city was worth?

A. Yes, sir.

Q. You would regard a valuation based upon information that left out the item of cost in Des Moines as of no value to any body?

A. Well I would not like to say that a valuation *l*ade without such consideration would be worthless.

Q. You would not recommend to one of your clients, if that is the right term to use, if you were going to advise for investment purposes you would not recommend action on a plant where no consideration had been given to the cost of the property in fixing value would you?

A. That might depend to some extent on *t*hat the information was to be used for.

Q. Well if it was information that was to be used for the pur-

pose of determining the value by people who knew nothing about the value of property at all, if they were trying to inform themselves?

A. There might be conceivable an approximate valuation which would serve some purpose.

Q. That is to say might guess at the value without having any definite information about it at all?

A. Some values need not be based on as detailed a study as I have made in this instance.

Q. But you regarded this item as one of the real important items upon which to base your judgment of valuation did you not?

A. Yes, sir.

Q. Now how many—I don't know whether you told in connection with the mains laid, but what period did the information
1436 showing the cost of laying mains and services cover?

A. I believe the past five years.

Q. And was that detailed information, that is did it show labor cost, the material cost and such overhead charges as might be necessary in the laying of mains and services?

A. As I recollect it the information was furnished in detail.

Q. And that was furnished by the Des Moines Gas Company in the form of written memoranda.

A. Yes, sir.

Q. Do you still have that.

A. Yes, sir.

Q. The next item here is cost of restoring paving and I believe that is one of the items of information that you did not accept just as it was furnished to you if I remember your statemen- *f*orrectly. Did you ask for the cost of restoring paving?

A. I asked for dat- on the cost of restoring various kind- of pavement in Des Moines.

Q. I suppose you did that because you recognized that the cost of that kind of work varied and was not the same in all localities?

A. I wanted to reinforce my judgment, to base my judgment upon a study of costs in Des Moines.

Q. It was in Des Moines of course, the property was in Des Moines you were fixing a value on?

A. Yes, sir.

Q. You wanted to know about the cost of that kind of work in Des Moines for the purpose of determining the value of taking up and repla*t*ing paving?

A. Yes, sir.

Q. You would not have thought it safe would you to have
1437 acted upon information about the cost of tearing up and replacing pavement in Wheeling for Des Moines would you?

A. I should have wanted detailed information of local conditions.

Q. Was this item furnished you by the gas company?

A. Yes, sir.

Q. In the form of memorandum?

A. The form of a copy of a letter.

Q. And that copy of a letter was a letter written to the gas company by somebody here in Des Moines?

A. Yes, sir.

Q. Do you remember who it was?

A. No, sir; I do not.

Q. Whose name was attached to it?

A. No, sir.

Q. Anyhow it was a letter purporting to detail the cost of tearing up and replacing a given amount of paving of the different kinds?

A. Yes, sir.

Q. That is to say on the memorandum was a statement as to what it would cost to tear up a piece of pavement so many feet wide and so many feet long where the paving was asphalt with concrete base and so much if it was brick pavement and so much if it was wood blocks and so much if it was this other kind of pavement, I have forgotten what they call it?

A. My impression is that the particular memorandum referred to or copy of the letter referred to indicated the cost per square yard, whether it gave dimensions of openings I don't recall.

Q. Well somewhere along *w*ither in your testimony or Mr. Lea's and I am not very sure which you indicate that you did not
1438 accept the company's statement as to the size of the openings?

A. I did not.

Q. That is you did not accept it?

A. No, sir.

Q. Now was it in this memorandum that they stated the size of the trench or opening that they furnished as a basis for the valuation on pavement?

A. No, this memorandum simply contained the cost of restoring paving. The sizes of the openings were determined from my own experience.

Q. They did however, furnish you some statement as to the size of the openings from their standpoint?

A. I don't -ecall that but I believe not.

Q. In this statement of the cost of repairing paving what other information if any was in it than just simply the statement of the cost given by somebody as to what it would cost to tear up and replace paving in Des Moines?

A. I believe there were some general statements as to the conditions under which the price named would hold.

Q. That is what I want if you can remember.

A. The only one which comes to my mind at the mo*n*ent is that—well I think more than one comes to my mind now. There was some specifications as to the material, the paving material which had been taken up, that it was not to be covered by dirt, excavated from the trench, and that in taking up brick pavement not more than a given percentage of the brick were to be destroyed or broken in taking out.

Q. Any other conditions?

A. That is all I recall at the mo*n*ent.

Q. Was there anything in the latter about the future care of the part of the paving that had been replaced?

1439 A. I don't believe there was.

Q. Or connecting it up with the balance of the paving?

A. My understanding of that information was that if a hole had been excavated through or cut through an existing paving and the paving was to be replaced that it was to be a good job and that the new paving was to connect on to the old and make a good piece of work or workmanlike job.

Q. Have you got the copy of the letter with you?

A. Yes, sir.

Q. If you will, just let me have that.

A. There is the letter.

Q. The letter you refer to uses some signs and marks I would like to ask about down in the specifications if that is a proper term, it begins with two course brick pitch filler width of trench 20 and what do the marks mean, does that mean 20 feet.

A. Twenty inches.

Q. And four with two points?

A. That means twenty inches.

Q. Width of trenches 20 inches, additional width of pavement 4 with two marks?

A. That is also inches.

Q. This letter you refer to is in the form of a proposal to the Des Moines Gas Co. on the part of the J. W. Turner Improvement Company to do certain work in tearing up and replacing pavements is that right?

A. Yes, sir.

Mr. BYERS: I will read it in the record so that we will have it.

1440 MAY 22, 1911.

Des Moines Gas Company, Des Moines, Iowa.

GENTLEMEN: We propose to furnish all tools, machinery, labor, and material necessary to relay pavement in a 20 inch trench, said trench to be excavated and backfilled by the Des Moines Gas Company to the sub grade of the pavement in place, for the following prices.

	Width of trench.	Additional width of pavement.	Per lineal foot.	Per square yard.
2 Course brick pitch filler.....	20″	4″	$.24	$1.05
Concrete base brick, cement filler.	20″	10″	.62	2.28
" " " Pitch " .	20″	4″	.36	1.75
" " " Sand " .	20″	4″	.28	1.37
" " " asphalt " .	20″	4″	.38	1.82
2 course " sand " .	20″	4″	.16	.72
Concrete base creosote block, pitch filler	20″	10″	.50	1.98

These prices are based on the condition that the men taking up the pavement will not cover concrete, brick, creosote blocks and

cushion sand which has been removed from the pavement with the excavated earth and will leave them convenient for replacing in the pavement. Also that in removing pavement with sand, pitch or asphalt filler, they will not destroy more than 10 per cent of the brick or creosote blocks.

Respectfully submitted,

J. W. TURNER IMPROVEMENT COMPANY,

By PAUL L. REILLY, *Secretary.*

1441 Q. Was that the information as to Des Moines upon which you at least partially based your judgment of the value of tearing up and replacing paving?

A. That was part of the information, yes. I used that for partially determining my judgment.

Q. Did you get any information from anybody else as to the cost of tearing up and replacing paving in Des Moines except that?

A. I discussed the question of paving costs with Mr. Vincent engineer of the Des Moines Gas Company and I am not sure from recollection whether the prices given by these contractors that I refer to Messrs. Mardis and Weitz have any data as to paving or not.

Q. They are not in the business of paving are they, either of them?

A. I don't recollect whether their lists furnished any paving items or not.

Q. At any rate this is the written information that was furnished to you by the Des Moines Gas Company upon the paving question?

A. It is.

Q. Now in this connection what you asked the company for was some information as to what the cost to the company had been for that kind of work wasn't it?

A. I didn't ask specifically for what you state.

Q. Did they ever furnish you information of that kind?

A. I had several talks with Mr. Vincent the engineer of the gas company and such information may have been included in these discussions I don't remember that.

Q. Now the next item here, an interesting one to me at least, a study of life and age and method of figuring, who furnished

1442 that?

A. Mr. Klumpp of the United Gas Improvement Co.

Q. Was it his work?

A. I am not sure of that.

Q. Do you have that paper with you?

A. Yes, sir.

Q. Did you request that?

A. I don't remember whether I requested that or not.

Q. Why was Mr. Klumpp furnishing it to you, what had he to do with it?

A. We had various discussions of the methods of de-ermining age, depreciation, etc., and Mr. Klumpp had made some studies of various methods of figuring these things and he gave me one of the copies or a copy of the work that he had done in that respect.

Q. Now right in that connection let me ask you if it is not the fact that in this conference the ones you had when counsel were present and some of these engineers we- present in February or whenev- the time was at Chicago and the one at the hotel there, Blackstone Hotel wasn't one of the questions that you were all discussing at these times was the true method that ought to be adopted in arriving at the value of property, wasn't that one of the things you were all discussing at the inception of this work?

A. We discussed a number of subjects and I am trying to refresh my memory just now as to whether we discussed the method of arriving at the value of the property or not. My impression is that we did not devote any discussion to the method of arriving at the value but we discussed features of the method.

1443 Q. Am I not safe in saying this that at these conferences when counsel and the engineers who were expected to fix a value and appear here in the trial of this case to support their reports, wasn't it a part of that discussion and wasn't that one of the things that you were trying to work out a concert of action on and that is the question just what items of value should be considered in arriving at a final estimate of the value of the whole property.

A. I believe there was a discussion of the varius items that entered into the value of the property.

Q. And I suppose it is true too that one of the things about which there was some difference of opinion among you at the beginning was as to whether or not all of the items that were finally included in the valuation or only a part of them were proper to be considered in a rate case.

—. I presume there was some discussion along these lines, yes.

Q. Would you as an engineer with the experience you have had in the business and with your knowledge of the gas business and its relation to the public and especially its relation to the public in Iowa would you make exactly the same valuation or rather would you adopt the same methods of arriving at the valuation and include the same items in the valuation in a case where the value was being fixed for the purpose of rate making that you would in a case where the value was being determined for bargain and sale?

A. I believe that I would make no difference in the value of the items that are contained for instance in my report in the Des Moines case, but there might be other considerations entering into the question of buying and selling which I might discuss.

1444 Q. In that connection isn't that exactly what you were doing in this conference, were discussing these propositions and trying to arrive at a concert of action on this question of valuation?

A. I believe we were duscussing all these featyres.

Q. Now when you said a study of life and age—first let me ask you what connection did you understand Mr. Klumpp had with this controversy?

A. I understand that Mr. Klumpp is an engineer in the employment of the United Gas Improvement Company of Philadelphia and I presume he is assigned to assist in this case on the part of the company.

Q. In other words you knew he was not an outside and disinterested party with respect to the valuation of this plant.

A. Yes, sir.

Q. You knew that his employment was with the owners of this plant?

A. Yes, sir.

Q. And how was it with respect to Mr. Heminger? Was that the same situation in his case?

A. Yes, the same situation is true in his case.

Q. Any of the other engineers occupy the same situation?

A. I believe Mr. Brodnax was in the employ if the United Gas Improvement Company early this year and prior thereto.

Q. Mr. Randolph, did he have any employment, that you know of?

A. Not that I know of.

Q. Was it determined there at the conference finally that Mr. Klumpp was to work out this study and furnish it to you gentlemen?

A. I don't believe that was determined at the conference because my first recollection of that study, I can't tell just when it
1445 was but I happened to see it one day and asked Mr. Klimpp what it was and he told me. I glanced through it and subsequently was given a copy of it.

Q. I suppose Mr. Lea and the rest of the engineers were given a copy too?

A. I am not sure of that. I don't know.

Q. The study of life and age, that meant life and age of the plant or the separate items of the property?

A. I believe that the studies contained in that statement of Mr. Klumpp's related to life and age of mains and meters and perhaps also the plant and plant apparatus.

Q. Did it purpose to be a study of the actual life or rather the life and age of property that was actually in existence or was it made up of estimates, etc.?

A. I believe it related to the Des Moines property in a general way, but I have not studied the same in detail so that I cannot say for sure on that point.

Q. Have you got it handy?

A. Yes, sir.

Q. I wish you would let me have it. The study you have handed me is a bound volume and on the inside front page the words Des Moines Valuation notes on depreciation with p. 31 no meters per year and the name W. A. Baehr on that page and the following pages from 1 to 56 inclusive.

Mr. GUERNSEY: It is hardly correct to call that a bound volume is it?

Mr. BYERS: Well perhaps not.

A. Yes, sir.

Q. And it has been marked by the reporter defendant's Exhibit 8?

A. Yes, sir.

1446 Q. The next item here Mr. Baehr is cost of meters. Was that information requested by you from the gas company?

A. It was.

Q. And was it furnished to you in the form of memorandum?

A. It was.

Q. And what was included in the memorandum as you remember it?

A. I don't remember what was included in that memorandum I would look at it to see.

Q. Do you have it handy?

A. It may be among these papers.

Q. If you will just take a second and see. Do you find it?

A. Yes, sir. It is the top statement on that sheet of paper.

Q. Mr. Baehr I wish you would read into the record or state into the record using the memorandum that was furnished you to refresh your recollection just what was furnished to you by the Des Moines Gas Company with respect to the cost of meters giving the information just as it was given to you?

A. The data is headed cost of new meters. Then there is a subhead period. Then March 1, 1906 to February 28, 1907 $25,746.76. March 1, 1907, to February 29, 1908, $12,137.37 March 1, 1908 to February 28, 1909, $5,798.54. March 1, 1909 to December 31, 1909, $12,263.41. January 1, 1910 to December 31, 1910, $13,089.36. Total meter account $69,028.44. Total meters purchased in above periods 7,034. Effective cost per meter $9.813.

Q. Do you know what was meant by the term effective cost?

A. I do not.

Q. Have you had that explained to you since you received that information?

A. I have not.

1447 Q. So you don't just know at this time even what they meant by that?

A. No, sir.

Q. What you got from it was that that was the actual expenditures for meters for tho-e years was it not?

A. The only thing that I got from that memorandum was that a certain meter account *shod* that many dollars per year. I discussed that with the engineer of the gas company and I subsequently secured other information verbally which I used in making my own costs.

Q. That information when it first came to you was in the form you have just read it?

A. Yes, sir.

Q. Indicating to your mind and that is the information that you got from it was that for the years stated there there had been expended actually for meters between March 1, 1906 and December 31, 1910, $69,028.44, the amount stated there?

A. The only information I got was that a certain meter account showed these figures and that is as far as my information went. I didn't ascertain——

Q. I know but you didn't suspect that didn't show the actual expenditure for meters did you?

A. All I know about — is what I said that it represents the expenditure of the meter account. That is as far as I went with it.

Q. What you asked for was the amount of money that was expended, paid out by the gas company for meters during these year-wasn't it

A. No I tried to secure a detailed statement of the cost of meters f. o. b. cars plus the cost of testing and handling, plus cost of connection and I didn't get that sort of a detailed statement.

1448 I got this statement. Then I subsequently had discussions about the meter proposition and finally formulated my own estimate.

Q. That don't quite clear up that situation for us. What did you understand when you got that that the item there from March 1, 1906, to the date the next year there, what that represented?

A. I presume it represents the cost of new meters in that period but I don't know that.

Q. That is what you took it to represent when you got it?

A. Yes, sir.

Q. Of course you don't know as to any of these things that appear in their records except as they state them to you?

A. That is it.

Q. Now you did request of the company did you not a statement of the amount paid out, may not have put it in just that form but you did request information as to the amount expended for meters covering a period of years?

A. My request was the cost of each size of meters f. o. b. Des Moines and not the total.

Q. They sent you what you have there?

A. Yes, sir.

Q. In requesting the cost f. o. b. of meters in Des Moines and I take that to mean delivered in Des Moines on cars you assumed it not only important but necessary to have that information in o-der to make up your general report here as to valuations of the light plant?

A. Yes, sir.

Q. And your whole scheme does depend upon the accuracy of the information that was furnished you all along the line as

1449 to the cost of the several articles does it not?

A. The information furnished me assisted me in forming my judgment of the cost of the property in Des Moines. Of course you understand that I have an idea of what the various kinds of things cost used in gas plant construction.

Q. But in this case you did not act on any idea about cost of other properties only as that might have aided when you had none locally?

A. I got all the information I could locally.

Q. The last item here is mains by districts number of feet and size. You had that in a separate memoranda did you from this?

A. Yes, sir.

Q. Did you request that?

A. Yes, sir.

Q. And just what is covered by the memoranda that was furnished you on that proposition?

A. Was that by districts?

Q. It says mains by districts number of feet and size.

A. That information comprised the number of feet of each kind of main in each district and the number of feet of each kind of main under each kind of pavement in each district.

Q. In other words it was a very complete statement covering all items that you have just mentioned.

A. It was.

COURT: Was that used otherwise than in the going value?

A. That was the principal purpose of it.

Q. In this last statement mains by district and number of feet and size it was necessary for you to have that in order to work out the plan or the method that you have adopted in arriving
1450 at valuation was it not?

A. Yes, sir.

Q. And that was the reason you asked it?

A. Yes, sir.

Q. Now I have noticed, at least I think I have, I don't know that I have been through your report carefully enough to be sure about it, but I see no place in the report where you have taken up the physical property by separate items and given the value by items. Your valuations are nearly altogether in totals are they not?

A. Yes, sir.

Q. In that respect you did not pursue the same method Mr. Lea did?

A. I am not at all familiar with Mr. Lea's report.

Q. You were here several days while he was explaining it you remember?

A. That is the only time I paid any attention to it. My method of figuring and my report is entirely different from Mr. Lea's.

Q. He took up, for instance, take the buildings, he started with clearing site and he allowed a certain amount for clearing site, then the next item was excavation and he allowed a certain amount for excavation and then the next item was probably foundation, if it was brick the number of brick and the cost of the brick in the wall which was carried out in his total of brick and then the frame work if there was any frame work, the number of feet of lumber and the price of that lumber I suppose as I remember it in the building and that was carried into his total. Now it is not possible for us to go through your report and ascertain just what you have used for your unit values is it?

1451 A. No, sir; those figures are not in the report.

Q. You I suppose, however, did work the valuation out from units.

A. Yes, sir.

Q. Then in that connection you get your information as to measurements, as to quantity, age of properties, perhaps better to say history from Mr. Brodnax' inventory?

A. Yes, I derived that information from the inventory of which a copy was furnished to me.

Q. In that inventory the separate items are carried through so that you had the items not only of apparatus, but of the material used in the building as to brick and all the quantities.

A. Yes, sir.

Q. So you have undertaken to value the mason work, cost of brick cost of excavations the cost of lumber in the wall or in the building and the cost of labor and all that sort of thing in Des Moines?

A. I have.

Q. Who did you consult if anybody with respect to what the cost of labor was in Des Moines?

A. I consulted the Des Moines Gas Company officials in Des Moines and I believe two contractors in Des Moines.

Q. The two you have already named?

A. Yes, sir.

Q. Did the Des Moines Gas Company furnish you any written memprandum showing the cost of labor in Des Moines?

A. I believe they did.

Q. What period of time was that memorandum confined to.

A. I understood that data to refer to conditions as of the time of this inventory or thereabouts.

1452 Q. It would be some time between the 1st day of January 1911, and the 1st day of July say, of the same year?

A. I would take the labor condition, the labor prices to refer to a building season.

Q. Well is that a building season I have just mentioned?

A. I would consider a building season from the opening of building work in the spring until towards the winter.

Q. Well of course then it must have covered a period sometime in the past?

A. That was my impression, yes.

Q. Probably what they paid for labor last year?

A. That was my impression.

Q. In other words, you didn't take a period of years and get the average cost of labor, that is not the way you proceeded?

A. Not on the labor, no I didn't.

Q. You undertook to fix the cost of labor for the building season of 1910?

A. Well I would extend that a little further and say it was the approximate price—that it was the price of labor for the entire year 1910 and p-esumably extending into the year 1911?

Q. How did you get at the cost of excavating?

A. Excavation?

Q. Yes?

A. The cost of excavation was stated by contractors to be so and so much for different kinds of excavation.

Q. So all your valuation then and estimates as to the co-t of excavation in Des Moines rests upon statements of these two contractors made to you through the gas company?

A. No. After having obtained these statements I studied them

very carefully and derived figures which in my experience
1453 would be satisfactory for that kind of work. I didn't accept the cost of work as given to me by these contractors without studying them and without using my experience on which to base a unit cost.

Q. You would not want to add anything to the value of this plant by refusing to take what it costs in Des Moines to do work would you?

A. I would certainly not want to do anything that was not fair and right.

Q. That is not just an answer. Isn't it true Mr. Baehr that if upon investigation you found that the cost of excavation in Des Moines was less than it was at these other places where you had experience in fixing value upon property in Des Moines wouldn't you accept that rather than the higher figures that your experience had convinced was in vogue in other places?

A. I would certainly pay attention to is and would certainly not figure the excavation as high as in other places where the costs were a great deal higher.

Q. Well wouldn't you take it exactly at the price it could be done for here, wouldn't that be the value of it?

A. Take practically that but I have included in my excavation the cost of hauling.

Q. Take the excavation right south of Elm street, you know where Elm street is, that cuts through the Gas company's property and divide it and leaves two storage tanks of some kind, I don't know just what they are.

A. Yes, sir.

Q. South of Elm street. There was quite a large job of excavation for these two tanks the dirt just simply hauled up in a
1454 big pile. What do you allow for that kind of excavation do you remember?

A. I can't tell you without looking up the exact figure, but I took my excavation and determined what in my mind would be the method of excavating, I had from these contractors the cost of doing excavating by various methods and I based my judgment of the cost of doing excavation by each kind of method on these figures.

Q. But there is no way is there we can take your report and ascertain just what you allowed upon certain parts of this work for excavating?

A. The report does not show that in detail.

Q. Let me put this question to you, if it should turn out that a dozen reliable persons would appear here and testify in this case that that kind of excavation the usual and ordinary charge for it was from 15 to 18 cents would you then think that the allowance in here of from 60 cents to $1.30 would be fair?

A. If the contractors had included in it in their estimates just exactly what I have included in mine and if my figure should be obviously wrong that way, I would admit it is wrong.

Q. You have used a sort of comparative method of getting at *at*

value you don't want the Master to understand that you pay no attention to actual conditions here do you?

A. No, sir.

Q. That is to say while you have treated and worked out what you regard as a fair valuation now of the plant buildings, as you call them, and in that valuation of course is included a large amount of excavations and common every day labor. You don't mean do you that your valuation was made without regard to the
1455 conditions down there and this kind of excavation that was actually done do you?

A. No, sir, I take into cognizance the conditions as they are in Des Moines and of the cost.

Q. Take that place I told you about where all in the world they had to do to make the excavation was to hitch a team of horses to a scraper and go into that soft dirt and scrape it up into piles, is it — your judgment and is that the figure you have used from 60 cents to $1.30 a yard for that work would be reasonable?

A. I don't remember what figure I used, but whatever figure for excavation I did use was my judgment of the reasonable price of that kind of work.

Q. Have you a memorandum handy so you can just at one glance see excavations?

A. Yes, sir.

Q. I would like to know the range of your allowance for excavation?

A. Well referring to the principal excavation for building No. 1 A and B, including hauling, I have figured $1.00 per cubic yard.

Q. You arrived at that valuation on the theory I suppose that it would be necessary to pay for not only taking dirt out but hauling it away?

A. Yes, sir.

Q. Off the premises?

A. Yes, sir.

Q. But how about when you don't take it off the premises at all but left it there to fill up sink holes around in the lot, used
1456 it for filling?

A. The figure for excavation which I have used in this instance is based on excavation and hauling and is my judgment of the reasonable price for that kind of work in excavations not exceeding 8 feet in depth. Now to answer your question specifically if excavated earth could simply be taken out by a scraper the cost would be less.

Q. Is a dollar the lowest figure you have allowed?

A. I don't remember, I would have to go through my detailed statements all the way through. But in my notes I find that I have the cost of excavation as ordinary cellars by barrow that is wheelbarrow, $1.00 per cubic yard. Ordinary cellars by scraper 35 cents a cubic yard, then the cost of a quarter mile haul on excavation of ordinary cellars at a total of 55 cents per cubic yard. This is all ordinary cellars.

Q. Now that is a sort of arbitrary valuation or cost fixed by you without any reference to the use of the dirt or value of it after it is taken out. That is to say these figures are what the work of taking out of the cellar or the place where the excavation is being made and hauling it away without reference to its use.

A. I have included in that a fair contractor's profit and take the figure as the reasonable average price for doing that kind of work per cubic yard.

Q. Does it make any difference what kind of soil you have to work in?

A. Oh yes if there were rock it would cost a great deal more. I assume no rock excavation at the plant.

Q. You assume the ordinary clay or sand sub soil?

1457 A. I have assumed the average soil or clay.

Q. No rock, no blasting, nothing of that kind.

A. No, sir.

Q. Did you make any inquiry here of men that were in that business to find out what they were charging for doing work every day right along?

A. I determined from local contractors what they considered a fair price for doing that kind of work.

Q. I know, but those contractors were getting that kind of work done. Did you inquire of anybody that was actually doing work themselves?

A. I don't know as I can answer whether these men were actually doing that kind of work themselves or not. I don't know them well enough for that.

Q. As I understand it, you didn't talk with them at all, but the company furnished you their statement.

A. I don't think I made my point quite clear. I was here a considerable length of time and I also had one of my assistant engineers here for a period of time which was as long or longer than the total time I spent here. He also made considerable inquiries as to the cost and reported to me and in connection with the memorandum of the cost of doing work copies of which were handed to me by the gas company, I determined what in my judgment was the fair cost for doing that class of work.

Q. Aside from those two contractors did any other disinterested party here in Des Moines give you any information about the actual cost of excavations such as the gas company were compelled to make when they built their plant?

A. No.

Q. Now take the question of brick, laying brick, do you

1458 know how you got at the value of the brick in the wall?

A. Yes, sir. We made inquiries, that is I am referring now to my assistant engineer and myself, of the cost of brick delivered in Des Moines and we found for instance that after discussing this with brick contractors, one was the Flint Brick Co., and also the Capital City Brick Co., that common brick that they would deliver common brick and considered a fair price for same delivered to be $9.00 per thousand. From that I made an analysis of the cost

of laying the actual thousand feet of brick in walls and foundations with using different kinds of mortar and in order to determine the cost of mortar I made a careful inquiry of the cost of cement delivered in Des Moines and the cost of sand delivered in Des Moines and I also ascertained the cost of labor in Des Moines.

Q. That is you mean you inquired about it and got information about it?

A. Yes, I got information as to the cost of labor in Des Moines. Then I added to the cost of the thousand brick and the cost of mortar sufficient for one thousand brick and the cost of labor for one thousand brick and added thereto fifteen per cent contractor's profit which gave me the cost per thousand brick laid and then I worked out the same sort of a tabulation for the different kinds of mortar, for instance I worked out one tabulation using cement mortar and followed the same lines and got an estimate of the cost of laying brick using lime and cement mortar and also an estimate of the cost of laying a thousand brick in lime mortar. That is the way I arrived for instance at the cost of brick.

Q. What did you finally figure in your estimate as the cost of a thousand brick in the walls?

1459 A. That depended on the kind of mortar used. If laid in cement mortar I figured $18.22 per actual thousand of brick.

Q. Did you make any investigation to see what kind of mortar had been used down there?

A. Yes, sir. That is covered in the inventory.

Q. That was lime wasn't it?

A. There was some lime and later there was some lime and cement and some cement mortar but in order to be sure in each instance I would have to look at each building.

Q. If there was any cement at all it was in the newest building or very late one?

A. I would have to look that up to get at the fact.

Q. Give us the value you finally arrived at?

A. This particular price I am giving you now is the cost of laying one thousand brick in foundations and bulk work with 15 per cent contractor's profit. If in cement mortar under these conditions I estimate $18.22 per thousand of actual brick.

Q. You inquired of the Flint Brick Co., and Capital City Brick & Tile Co.

A. I just have it the Capital City Brick Co.

Q. All right the Capital City Brick Co. Now you take brick being made by the Capital City Brick Co., and the other company that you say you inquired of and lay a thousand of them in a wall, is there any wall down there in any of the buildings of the Des Moines Gas Company's plant that would be like that thousand brick wall?

A. I don't believe I understand that question.

Q. The question is this, the buildings that the Des Moines Gas plant is occupying were built out of certain kinds of brick.

A. Yes, sir.

1460 Q. And laid in lime mortar or cement. Now did you ascertain or try to find out whether that brick that these people would furnish at $9.00 a thousand was the kind of brick that was in these walls?

A. That is what I understood from inquiry.

Q. Who told you it was?

A. I went down and inspected the brick, also discussed that with the gas company, also discussed with the brick people and they stated to me that the usual brick used in walls was worth $9.00 per thousand.

Q. That is the usual brick used in walls nowadays?

A. Yes.

Q. Was $9.00 a thousand but the brick in these walls are not the usual brick that are being used these days are they?

A. There are some brick that are much better than common brick.

Q. Yes, some brick are better that is true, but most of them are poorer and most of them differ from any brick made in this market now, are they not?

A. I think that is not quite true Mr. Byers. I think that the brick in the generator house and the brick in the building occupied by the blowers and the two 8 foot 6 condensers, and the boilers is a very good grade of brick and better than the common brick.

Q. These buildings are of recent construction?

A. The generator house or extension at least of the generator house of comparatively recent construction.

Q. What is the size of the brick in the old building, building built thirty five years ago?

A. I can't tell you what the dimensions of the brick are.

Q. And the one that was built 19 years ago, did you pay any attention to the size of the brick.

1461 A. No, sir; because the brick made by different people varies somewhat in size.

Q. All of that old brick down there are practically every brick that was used in these buildings prior to 1900 are common soft brick ain't they, that is except the trimming?

A. There are some buildings there made out of common brick.

Q. And all of them built prior to 1900 built out of common soft brick aren't they?

A. I would not *to* commit myself as to the date.

Q. All of the old ones anyway?

A. I presume the old ones are built out of common brick.

Q. The figures you have there are $18 for lime?

A. For lime mortar and common brick laid in foundation and bulk work including 15 per cent contractor's profit $16.95.

Q. How much laid in c-ment?

A. Laid in cement in foundations and bulk work, $18.22.

Q. In these other items of excavation did you allow contractor's profit too?

A. I allowed a contractor's profit in excavation, that is excavation at the plant, not excavation in the distribution system.

Q. Is that about fifteen per cent?

A. In that estimate a contractor's profit is used at fifteen per cent.

Q. That is to say if there was 10,000 cubic yards of excavation you would ascertain by your method the value of the digging hauling away of the dirt and then to that give a contractor's profit of 15 per cent?

A. In the excavation as nearly as I could get it I estimate that the contractor's profit is about 15 per cent. It is very diffi-
1462 cult to tell just exactly what it is, might be 12 per cent, might be 15 or 16 per cent.

Q. That would be a matter of estimate unless you had the contract at so much and knew just what the profit was?

A. Yes, sir.

COURT: You did not give the cost of lime and cement mortar?

A. If in lime and cement mortar common brick in coundation and bulk work $18.28 per actual thousand of brick.

Q. Do you mean in actual brick in the walls or do you mean in actual brick furnished for the walls?

A. My estimate is based on actual brick in the walls.

Q. And what consideration if any do you give for bats and broken brick, anything?

A. If there were any great amount of those that would go in as a portion of the profit which I have shown here in contractor's profit.

Q. That is the way you would cover it would be the contractor's profit?

A. Yes, sir.

Q. You have already told us all of your information about brick and cost of labor and all that sore of thing as far as Des Moines is concerned was by information from the company or from these two contractors and your own helper whatever he found about it?

A. Also our inquiries directly from the manufacturers.

Q. Now how about lumber, how did you get at your valuation of lumber?

A. In order to find out what fair prices for lumber were in Des Moines, we consulted Reese Gabriel & Co., and we obtained from fair prices delivered on various kinds of lumber. When I have
1463 figured a carpenter's job I have taken consideration of the amount of lumber that it was necessary to use to take care of overlapping and to take care of the fact that lumber comes in even lengths. For the carpenter labor and nails I based that at a certain number of dollars per thousand depending on the kind of work and in lumber work I have estimated a 15 per cent profit.

Q. The same as you did in the brick work?

A. Yes, sir.

Q. In other words where the invoice as made by Mr. Brodnax would show 10,00- feet of common lumber in some bulidings you dertermined what you thought would be the reasonable value of 10,000 feet of common lumber in the building with a 15 per cent contractor's profit added.

A. Yes, sir.

Q. And you got your information largely from Reese Gabriel about lumber?

A. About the co-t of lumber itself and also added to my information by the figures given by the contractors which we have named.

Q. The two men you have named?

A. Yes, sir.

Q. So that all of your figures with respect to lumber and brick and excavation is based so far as Des Moines is concerned anyway on what somebody else told you is it?

A. Well I was obliged to accept the statement of manufacturers as to what they would sell lumber for and with that statement I believe I would answer yes.

Q. Now I suppose you had nothing to do with the invoice itself so as to be able to say anything about its accuracy as to either number or quantity or quality or anything of that kind?

1464 A. I made a very careful check of the dimensions, but I did not calculate the quantities of brick but accepted the inventory in that respect.

Q. As being accurate?

A. Yes, sir.

Q. Did you measure the thickness of the walls in the building?

A. I did.

Q. You checked to that extent?

A. We checked one building through entirely, that is calculated everything that was shown in the inventory, possibly in two buildings but one I know of at the moment and we found that the quantities in that case were substantially correct.

Q. You had several men at work here did you not, Mr. Baehr?

A. I had only one assistant with me in Des Moines, but several men of mine subsequently helped me in the figuring of this work in Chicago, although I determined all the unit prices.

Q. You checked up all apparatus down there?

A. Yes, sir.

Q. So you are pretty well satisfied that we have not left out any holders or generators or anything of that kind?

A. I don't think there has been anything of that sort omitted.

Q. In a general way you checked up this invoice so as to satisfy your own conscience anyway if I may use that term that you were putting a value on the plant about as it really existed didn't you?

A. I believe I have a fair value on the plant.

Q. As it really exists? Now just a minute about the pipes and what you call the specials. How did you get at your values of these articles?

A. Take in the first place main pipe. I obtained from the

1465 Des Moines Gas Co., a statement which has been mentioned before this afternoon of all the purchase of cast iron pipe by the Des Moines company since 1906 and from that statement I determined a weighted average price paid for cast iron pipe by the Des Moines Company since that time and made up two tabulations giveng that information and after having determined the weighted

average I determined from that what would be a fair price to use for main pipe in Des Moines and that price that I took was somewhat less than the actual weighted average of the purchases of the company since 1906. The cast iron pipe market has been low recently, rather low.

Q. It is very low now isn't it?

A. It is very low just at the time being, but I took a price that I thought would be fair under the circumstances based partly on—well I might say largely on the weighted average of the actual price paid by this company in these years.

Q. Right there Mr. Maehr you took a period over which you say you traversed in arriving at your weighted average. Two or three years of that time this pipe was exceedingly high wasn't it?

A. The price per ton varied considerably. The statement that the Des Moines Company gave me contains the dates on which they purchased the pipe and now for instance the cost of pipe in my first tabulation f. o. b. cars per ton run from $26.15 up to as high as $36.00 per ton.

Q. Is that the highest point that was reacher in 1908 was it?

A. I can't tell without referring to the memorandum that the company furnished me. I have not the dates in my notes.

Q. You still have the memorandum that was furnished?

A. Yes, sir.

1466 Q. All right.

A. Now the weighted average price per ton of all cast iron pipe bought f. o. b. cars Des Moines, including the four inch pipe was $31.22, excluding 4 inch pipe $30.55 per ton. That is considering only the six inch pipe, the corresponding price was $30.55. In considering the price I take into consideration also of the state of the pipe market and try to arrive at what in my judgment is a fair price to use to apply to the enti-e main pipe owned by the company and in use. The prices I took were for four inch $29.50 per ton, f. o. b. cars and for six inch $28.50 f. o. b. cars. To this there was added the cost of carrying pipe to where it was used.

Q. How much was that a ton, the cartage?

A. $2.00. And the store room expense which in the case of this company and from the memorandum submitted to me by the company was 5.96 per cent.

Q. The sto-age charges?

A. Yes, sir.

Q. That was what per cent?

A. 5.96.

Q. Figured on what?

A. On cost of the material.

Q. Including cartage?

A. Not including cartage in main pipe. In the cost of cast iron pipe I have added store room expense to the co-t of pipe f. o. b. cars per ton and then added the cartage.

Q. This $2.00 cartage, what was that for, just what cartage from the train to storage?

A. Some cast iron pipe are delivered directly from the cars to the

job, that is it is hauled directly from the cars to the street
1467 where it is laid.

Q. That is true of all large pipe?

A. That is usually true of large pipe. Smaller pipe may be put in the yard for a long time and then hauled out or for a short time so that there may be at times the cost of two hauls in some of the pipe.

Q. You allowed $2.00 for the cartage whether it is two hauls or one?

A. Yes, as an average price.

Q. And this five and a fraction per centage for storage where did you get that?

A. All the material passing through the store account of the gas company last year received a store room expense addition of 5.96 per cent which is the cost or the amount of money necessary to cover sto-e room expense or cost of car-ing and records of stock.

COURT: Is that including freight?

A. I have based my prices on f. o. b. Des Moines.

Q. You have allo-ed and added into the value of all of the pipe that storage charge of five and a fraction per cent?

A. Yes, sir.

Q. Whether it ever passed through the storage place or not.

A. I considered that was a fair reasonable charge to add to the pipe.

Q. This gas company, do you mean that they charge up as part of the cost of all their pipe that storage of 5.96 per cent and you adopted their charge?

A. I adopt their charge just how they treat that on their books I don't know.

Q. But anyhow whatever they told you, they did tell you
1468 that was a charge of 5 and a fraction and you have just adopted that and charged to the cost of the pipe?

A. Yes, sir.

Q. Wasn't that rather a new and novel thing to you?

A. No, sir. That is a usual thing in gas plants. In fact that is the practice in all gas companies with which I have been connected. They all keep a store room and the cost of running the store room was distributed over the cost of the material that passed through the store room.

Q. Then it is not storage at all, the item is as you figured out there is the cost of operating the headquarters or office a portion of it that should properly be charged to pipe, that is what you mean is it?

A. It is the cost of taking care of material and keeping track of it and is part of the cost of the material.

Q. Do you mean that there is some separate service performed by somebody in connection with the gas company for that item other tha- the general service around the office?

A. Yes, sir.

Q. What is it?

A. I can explain that best perhaps by stating in the cases where -- have bee- connected the store room department was a very large department, for instance at St. Louis there was a store keeper and a

great many assistants and there was telephone and stationary and coal for heating, gas, used for lighting the building, a great many charges connected with that which had to be absorbed.

Q. I think I get a better understanding of the item than I had before. I got the impression in the beginning it was for storage as distinguished from store expenses.

1469 A. It might be my wording is unfortunate.

Q. No it was not your fault, it was my own. Now as I understand that it is the proportion of the expense of operating the business at headquarters to handle this material and store it if it has to be sto-ed that is charged up to pipe and that amounts to five and a fraction per cent?

A. That is what it amounts to in a case of this kind.

Q. And that you have added to the cost of the pipe?

A. Yes, sir.

Q. Now I suppose of course that is one of the items that is charged into operating expenses too?

A. Well if the material which comes o-t of the store room is used in operation it would go to operation. That is that part of it and if other material went to construction account that proportion of the sto-e room expenses would go to construction account.

Q. The larger pipe, sixteen, 20 and 24 inch pipe, invariably goes right to the field doesn't it?

A. It would usually go that way, that would be the most economic way to handle it. It might be necessary to store it for special work.

Q. And that would also be true of the 12 inch pipe wouldn't it?

A. Not necessarily although in laying pipe people naturally buy requesting deliveries when they are ready to lay it or just prior thereto and they avoid if possible a second haul.

Q. What were your unit values or prices of the larger mains above the 6 and 4 inch?

A. I used for six inch and larger, $28.50 per ton f. o. b. cars Des Moines. For the 6 inch cast iron pipe and larger sizes up to

1470 and including the largest, a price of $28.50 a ton f. o. b. cars, Des Moines.

Q. Right at that point, do you know what the price of that pipe is toda- delivered in Des Moines?

A. I don't know what the price is in Des Moines, but I have kept track in a general way of the price in Chicago.

Q. Well there would be but little difference between the price in Chicago and price in Des Moines?

A. There ought to be, the price ought to be more here and is more here.

Q. What was the price in Chicago say on the 1st of January this year 1911?

A. For gas pipe the price in Chicago ran from $23 to $24.50 per ton.

Q. January 1, 1911?

A. January 1, 1911.

Q. And it is considerably less now isn't it?

A. I think prices now, I have not seen quotations for some four or

five weeks, I think at the time I last saw them the prices were from $22 or $22.50 a ton to about $24 per ton.

Q. Now if you will, go on with the other units there.

COURT: January 1, 1911, you say $23 and $24 for the large ones?

A. That is the price in Chicago.

Q. What would be the difference or what was the difference at any time you have knowledge of the quotations of that kind of pipe in Chicago and in Des Moines?

A. I have not that knowledge because I obtained my knowledge of local prices from the records of prices paid by the gas company.

Q. Well how did that compare with Chicago prices.

1471 A. I should jugde there would be a difference of about a $1.50 or $2. per ton perhaps.

Q. Now to close up the day I want to go to another question if you will take youe Exhibit 21 I wish you would give me the total amount and it will help me if you make a memorandum o- the items as we go along, the total amount of item No. 1 as you have consid-red it and estimated as an item of ccost?

A. The tota- amount of item No. 1 I would have to figure for you on the reproduction cost new because I have not got that separate in my report.

Q. It would be a little more wouldn't it, reproducyion cost new.

A. That would be more yes.

Q. Well give it to me the -ay you have it, the way you can get it the quickets. That is what you call legal and organization?

A. No, sir; No. 1 is contingency. I have got contingency figured out separately on present value or depreciative value and the total of that item is $180,887.

Q. What is item No. 2 the added cost?

A. Item No. 2 is engineer and superintendents.

Q. Now give me the amount of that?

A. The amount of that based on present value meaning by that as of January 1, 1911, is $102,484.

Q. Now if you will give me item No. 3, what is it?

A. Item No. 3 is legal and organization and the amount based on present value is $80,581.

Q. I have that $90,244. I wonder how I got that?

A. You must have got that on the basis of reproduction new.

Q. Now item No. 4.

A. Item No. 4 is taxes. Total amount of that added to the capital account pr-sent value $49,709.

1472 Q. Item No. 5?

A. Interest during construction present value total $133,191

Q. Item No. 6.

A. That is all.

Q. Well the amount of your going capital then we will call it item No. 6, I am getting at the added costs.

A. The going value is estimated at $509,795.

Q. Now working capital?

A. Working capital $150,000.

Q. Now the paving?

A. If it will be of any s-r-ice to you you may have this table itemising that.

Q. That will be of service to me but I will finish the examination as I started. The amount now of paving?

A. This is reduced to present value and the base figure using present value paving over mains $259,851, all present value.

Q. That is only paving over mains?

A. Yes, sir.

Q. I wanted the total of that, paving over mains and services both?

A. I have them separate. The additional item paving over services present value base figure $22,384.

Q. Is there anything else in the way of added costs there I mean over and above as counsel said the other day, the value of the bare bones?

A. I have got figures here real estate, buildings, contents of buildings, outside apparatus, general office and stable equipment, street mains, paving over mains, services, paving over services, meters in use, meters in stock, distribution tools.

Q. These figures will answer my purpose for the time being. Now your total as it appears there in your report total present value of the property $3,221,166. And what do these other items total you just gave me, the tota- engineering, legal and organization, taxes, interest, going value, capital and paving?

1473

A. You want working capital included?

Q. I do want it.

A. The total present value of the items No. 1, 2 and 3, taxes, interest during construction, working capital and going value is $1,488,872.

COURT: There is just one question I want to ask you, this $3,221,166 is construction cost?

A. No, sir; that is the present depreciative value.

Q. Did you leave out the paving?

A. That includes the paving, that $1,488,782 includes base figure present value paving over mains and paving over services. The present depreciative value of the tota- property I p-ace at $3,221,166, and the items Mr. Byers was asking me to total up are included in that figure I have just named.

Q. Then if I understand Mr. Baehr, and it is important for me to have these figures now because of the manner in which your report is made up, if I understand your testimony the present value that you find of the Des Moines Gas Co.'s property, aside from these nine items of contingency and engineering, legal and organization, taxes, interest, going value working capital and paving is $1,732,294?

A. I make it $1,732,294.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

1474 Wednesday Morning Session.

AUGUST 2, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

WILLIAM A. BAEHR, re-called for further cross examination, examined by Mr. Byers, testified as follows:

Q. Mr. Baehr, the last thing that went into the record last night was the figures that were made up from which a balance was found of $1,732,294 which represents your valuation of the property, less the nine items that were given to me. Now I desire to know whether in that $1,732,294 is included the fifteen per cent that was allowed as contractors' profit?

A. All the base figures of present value are calculated from the reproduction new value and where I have used the contractors' profit of fifteen per cent in the reproduction new value the same has been depreciated and is found in the base figures of the present value.

Q. The $1,732,294 is the present value of the property less the nine items that you gave me, which items were contingencies, engineering and superintendence, legal and organization, taxes, interest, going value, working capital and two items of paving, making nine altogether; that represents the present value less these items as I understand you?

A. I would not want to say just what it represents without going over each item. The figures which you have mentioned are all figures based on present value.

Q. Let me put it in another way, Mr. Baehr. There is no fifteen per cent allowance or addition to the first item, contingencies,
1475 $180,877?

A. There is not.

Q. There is no fifteen per cent allowance for additions in the item engineering and superintendence, $102,484?

A. No, sir.

Q. Nor in legal and organization?

A. No.

Q. Nor in taxes?

A. No.

Q. Nor in interest?

A. No.

Q. Nor in going value?

A. No.

Q. Nor in capital?

A. No.

Q. Nor in paving?

A. There is no fifteen percent in the figures on paving; what profit there is in the paving for the contractors, I don't know.

Q. I understand that, but what I am trying to get at, if you can give it to me without too much trouble, is the present value, the total present value of the property in which there is an allowance of this fifteen per cent; I want to get that item, if I can, in figures.

A. In order to do that I would be obliged to go through my entire detailed estimate and determine each of the items in which I have made an allowance of fifteen per cent. For instance, brick work is based on fifteen per cent contractors' profit; lumber work, there is a contractors' profit estimated and in steel work; but there is no contractors' profit estimated in the distribution system, that is, in the mains and services or the meters and not in portions
1476 of the plant, certain portions which I figured the Company would do itself, and that fifteen per cent profit where it has been allowed is used in the reproduction new figures and the present or depreciated value; in order to arrive at that the percentage condition is applied to the reproduction new value which contains fifteen per cent contractors' profit where I have used it.

The MASTER: It is included in works equipment or machinery?

A. In machinery which is estimated as being purchased and erected by contractors there is a contractors' profit and there are certain portions of the plant that I estimated the gas company would perform the work itself and in such cases I estimated no contractors' profit; that is all based on reproduction new.

Q. Will you tell me just where in Exhibit 21 I can find the details with respect to the numerous buildings?

A. On page 76.

Q. Now on page 76 you show the buildings to be of the total value—are they all on that page?

A. They are carried forward to page 77.

Q. I notice pages 76 and 77, your total value after adding the items 1, 2, and 3 and taxes and interest, you make buildings worth $86,924 and your base figures are $67,607. Now to which figure did you add the fifteen per cent, if to either?

A. The fifteen per cent contractors' profit, where I have used it, is included in the details of the buildings. For instance, the brick work and lumber work, that could not be deducted from this exhibit.

Q. Well, let me put the question this way: Every part of the building was figured by you on the basis of erection by con-
1477 tractors, was it not?

A. In order to know that I would have to look through each detail.

Q. That is your general recollection of it?

A. I figured that the buildings would be put up by contractors, but I wish to refresh my memory before——

Q. I wish you would do that.

A. I estimated fifteen per cent contractors' profit in brick work; no contractors' profit in clearing site and staking out; in cement work there is undoubtedly a profit, but I don't know whether it is fifteen per cent or not. The estimated prices that are used are the market prices and I can't tell you the percentage of profit in some of them.

Q. These statements that you are making now, are you getting them from your report?

A. I am getting it from some memoranda I have.

Q. We couldn't take the report and get these facts you are now stating?

A. No, sir.

Q. Well, let me put the question this way, Mr. Baehr: Whatever of contractors' profit you did allow will be found in what you term base figures; it is in there and makes up a part of the figures wherever it was allowed?

A. Yes, on the basis of reproduction new and does not apply to the whole of the base figures necessarily. In other words, there are certain portions of the work on which no contractors' profit was figured.

Q. Well what else is there in the base figures except the value of reproduction new—nothing else in there, is there?

A. I have got some figures, I have got base figures as of present or depreciated value.

1478 —. Yes, I know; but the base figures as they appear here in your report all represent reproduction new, do they not?

A. They represent just what I stated at the top of each page and I find that is reproduction new in each instance.

Q. Why do you think it is necessary to take that precaution.

A. I believe it is reproduction new.

Q. You made these figures yourself, didn't you?

A. Made most of them, yes, sir.

Q. And I suppose you supervised the preparation of this report?

A. I did.

Q. So that you are quite familiar with not only the completed report, but also the detailed information that was used and from which the report was made?

A. Yes.

Q. All I am trying to get at is to get for my own use and the use of the Master—as far as he may want to use it—information from you as to just where, in a general way now, that fifteen per cent is added.

A. The buildings contain fifteen per cent profit, except in certain parts, but inasmuch as the buildings are composed of brick mostly, all brick, concrete, lumber, roofing, the greatest part of the base figure of reproduction new building cost in my report will contain fifteen per cent profit.

Q. Well, now, if we should want to determine the accuracy of your figures and the propriety or necessity, in order to arrive at a fair valuation of including or adding this fifteen per cent to any particular part of this property, we couldn't do it, could we, from your report? There would be no way that we could check you up on that, would there?

A. I believe in order to be accurate it would be necessary

1479 to go through each item.

Q. And have your detailed memoranda?

A. I think I could tell you such portions of the work in which I did allow a fifteen per cent contractors' profit.

Q. But to do that you would have to refer to your memoranda that is not set out in this report?

A. Yes.

The MASTER: If you divided by 1.15 at these places you allowed it would give you the net result?

A. Yes, sir.

The MASTER: And that is the amount without the contractors' profit?

A. Yes.

Q. That is, if we knew just what figures you had included it in here we could arrive at it by dividing 1.15?

A. Yes, sir; but you must understand that certain apparatus like purifiers, water gas sets, the boilers, I don't know whether the percentage of profit on them is exactly fifteen per cent.

Q. You don't know whether that is exactly what you included in your figures or not?

A. The question under consideration is manufacturer's cost and that is a difficult thing to get at.

Q. Anyway, it wouldn't be proper for us to multiply by fifteen per cent, or rather take fifteen per cent of these total figures and call that what you allowed for contractor's profit?

A. It would not.

Q. Now, take your compararive plant, Mr. Baehr, and I wish you would state, if you can without too much trouble, the per cent growth of the plant covering the years that you have given in making you- comparison.

1480 A. In the year 1911, the comparative plant sells no gas. In the year 1912 it sells no gas. In the year 1913, as shown on page 140, the consumption of the comparative plant is estimated to be 135,111,000 cubic feet. That cannot be compared to the consumption of the preceding year by percentage because the preceding year was nothing. In the year 1914 the comparative plant consumption is estimated to be 417,399,000 cubic feet, which is an increase over the previous year of 282,286,000 cubic feet, which is approximately 208 per cent increase.

Q. Is that the year 1914?

A. Yes, I was discussing the increase of 1914 with those of 1913 in the comparative plant. Now in the year 1915 the estimated consumption of the comparative plant *os* 623,709,000 cubic feet, which is an increase over the preceding year of 206,312,000 cubic feet, which is equal to an increase of about 49.4 per cent over the estimated consumption of the year 1914. In the year 1916 the estimated consumption of the comparative plant is 692,549,000 cubic feet, which is an increase over the consumption of the yea · 1915 of 68,840 000 cubic feet and which is an increase of about 11 per cent. In the year 1917 the estimated consumption of the comparative plant is 743,010,000 cubic feet, which is an increase over the estimated consumption of the year 1916 of 50,461,000 cubic feet, or approximately 7.28 per cent.

Q. Now that comparative plant, or rather your figures on your comparative plant cover a period of seven years?

A. Yes, sir.

Q. Now, what is the average per cent growth for those seven years?

A. The seven years comprise the period from the inception of the enterprise until the comparative plant is estimated to have caught up with the going plant and two years of that time is taken for *for* construction without any gas being manufactured. I do not see just exactly how I can compare the average sales with the sales during the construction period when there were none.

1481

Q. I am not asking you to compare them at all. I am simply asking you to take the percentage you give me and give me the average per cent increase for the period you used in making your comparison of the plant.

A. I would like to have a little time to do that, because I believe that has to be figured on the basis of the weighted average.

Q. I will put it in another way. You started with 1914, 1915, 1916, and 1917, four years; now give me the average per cent increase during these four years?

A. If I understand you, you want the numerical average of the percentage I have stated?

Q. Yes, for those years.

A. The numerical average of 208 per cent, 49.4, 7.28 per cent and 11 per cent is 68.92 per cent.

Q. Now I wish you would take the Des Moines Gas plant for the years—well the last four years preceding the 31st day of December, 1910, and give me the per cent.

A. As shown on page 138 of my report, the per cent of increase of the Des Moines Gas Company for the years 1907, 1908, 1909 and 1910, inclusive, *are* 15.4.

Q. You are giving them by years?

A. Yes; the percentage increases for the years named are respectively 15.4, 7.3, 7.8, 7.0 and the numerical average of these four figures is 9.375.

1482

Q. Now these figures of increase as shown on your report on page 138 represent the correct figures as they appear in the books of the Des Moines Gas Company, do they—I mean those are the actual figures showing the actual sales?

A. They were given to me on memoranda from the Company in typewritten form and I believe they represent the actual figures as shown on their books.

Q. It was at least so represented to you and you understood it so?

A. Yes.

Q. In your examination in chief, Mr. Baehr, you referred to Massachusetts gas statistics. What is the rate for gas in Massachusetts—we don't care to have you go through the entire records of Massachusetts, but in a general way tell the low price and the high price.

A. It is not in my memory and I would have to look it up.

Q. You referred to it in your examination in chief and that is the only reason I inquire about it now.

A. I have no figures of rates in my mind; the figures that I referred to in my examination in chief were in reference to the average size of mains and the unaccounted for gas of certain Massachusetts companies, certain typical companies, as I took them from

the report of the Board of Gas and Electric Light Commissioners of the commonwealth of Massachusetts, marked the Twenty-sixth Annual Report.

Q. That is the book which you had in mind when you referred to Massachusetts statistics, the statistics appear in that publication?

A. Yes.

Q. In the memoranda that was furnished you showing the operating expenses for 1910, were the details set out, the items of
1483 operating expenses?

A. Yes.

Q. Do you have that memoranda with you now?

A. I have.

Q. I wish you would produce it.

A. (Witness produces memoranda) The only copy in detail which I have in my possession is a copy from some figures which I received, the original of which I have returned, and this copy was made in my office. I believe it is a correct copy of the figures that were furnished to me.

Q. The memoranda handed me, Mr. Baehr, covers three years, does it not?

A. I believe so.

Q. 1908, 1909, 1910?

A. I don't know whether that covers the calander years or not; I would have to look and see.

This memoranda covers the year ended September 30, 1908; the year ended September 30, 1909; the year ended September 30, 1910 and the year ended December 31, 1910.

The MASTER: That is the whole of that year, 1909?

A. Yes, that is covered separately and entirely.

Q. I wish you would turn to page 149, Mr. Witness, of Exhibit 21—no the page following 149, this sheet following page 149; now what do you have to say as to whether or not the information set out, the figures set out on that page were taken from these two sheets you have just handed me, that is so far as it refers to the going plant?

A. The figures for gas sold in Des Moines and in Valley Junction, the total unaccounted for gas, the total gas sent out from the gas plant and the operating results in detail of the entire
1484 plant for the year 1910.

Q. I should have limited the question to 1910.

A. They are taken and I believe are a correct guide of that paper that you have now.

Q. Now, all of the rest of the figures on this sheet following page 49, 1911, 1912, 1913, 1914, 1915, 1916 and 1917, are your estimates of the future condition of this property in its relation to the city of Des Moines and the manufacture and sale of gas?

A. All except the column which I call the adjusted column for 1910.

Q. Where is that column?

A. You will notice that the first two columns of figures in 1910 give the actual operating results.

Q. That is the first two columns?

A. Yes, and the next two columns give my adjusted operating details for the same years. The rest of the figures are my estimate of the future up to and including the year 1917.

Q. Do you mean by that your adjustment simply amounted to taking out Valley Junction?

A. My adjustment made a proper allowance as near as I could estimate it of the cost of supplying the gas to Valley Junction and I also adjusted certain other items.

Q. Just how did you mean?

A. I can illustrate that best by an instance. If you will refer to the general heading "distribution" you will find a left-hand item called repairs mains. This item you will find as stated in the actual operating results to have been for the year 1910, .0176 or 1.76c. per thousand feet of gas sold. Now, in my judgment an allowance of 1.25 per thousand feet gas sold if carried as a contingent
1485 account from year to year will be sufficient to cover main repairs, and I therefore reduced that figure. Then there were certain other figures that I treated similarly. For instance, repairs meters; that figure for the year 1910 was .0098, and in my judgment, derived from my experience, I figured that the proper allowance to cover this item should be .0150.

Q. In other words, you increase that materially?

A. I do, because from my experience I feel that the figure .0098 is not sufficient to properly maintain the meters.

Q. Then if we take the footings at the bottom of the sheet under your so-called adjustment column, is that carried into more than two columns?

A. No, sir.

Q. Well, now, when you get down to the bottom you increase rather than diminish the percentage, *did* you not, from .0594 to .0600?

A. No, I think you will find I decreased it.

Q. Where is it?

A. The total operating expenses, not including taxes a*b*d depreciation, giving now the actual results for the entire plant for the year 1910 were .5908. In my adjusted results the figure is for the same year .5867.

Q. Then you reduced it slightly?

A. I did.

Q. Now, then, aside from these changes or adjustments, as you call them, all of the figures and information set out on this sheet following page 149 of Exhibit 21, and under the years or figures 1911, 1912, 1913, 1914, 1915, 1916 and 1917 represent your estimates and your judgment of the future operations of the plant in Des Moines?

1486 A. During these years, yes.

Q. I mean during these years. Now how does that growth or increase compare to the percentage you gave me for the last four years—take the first four years of your estimated operations, how does it compare with the last four years of the plant, is that percentage increased or smaller, if you can tell off-hand?

A. I don't understand whether you are referring to the sales in cubic feet or increase in operating expenses.

Q. Well you have carried increase in all these items. Now take the increase in sales or the increase in gross revenue or net revenue; but since the other was sales, if you will take the gross sales for the first four years of your estimate and tell me how it compares with the last four years of the company's actual sales.

A. I have estimated that the percentage of increase each year over the preceding year of the Des Moines Gas Company for the next four years is less than the same percentage of increase each year over the preceding year of the Des Moines Gas Company for the past four years.

Q. Can you give me the per cent increase for the four years of your estimate you have given me for the last four years of the plant, I want to make a comparison if I can.

A. The average per cent increase of sales of the Des Moines Gas Company for the year- 1911, 1912, 1913 and 1914, that is, the numerical average of the percentages as enumerated on page 138 of my report is 5.745 per cent.

Q. And the other was—I don't remember the figures you gave me?

A. The other was 9.375 per cent.

The MASTER: When you say nine point, what do you mean?

A. I use the word point in place of the word decimal.

1487 Q. Now turn to the second sheet following page 149, and I wish you would state how much, if any part, of that sheet is a mere duplication of the preceding sheet?

A. The details shown in the column headed going plant 1910 together with the names of the detailed accounts is a copy of a column of those same names on the preceding sheet.

Q. Now, all the rest of this sheet then, if I understand it correctly, is your estimate of the growth or rather is your estimate of a comparative plant showing the growth of the comparative plant beginning with the organization in 1911, 1912, 1913, 1914, 1915, 1916 and 1917.

A. It is.

Q. Now, in arriving at these figures you have used almost altogether your own judgment and estimate as to the amount of business that would be done in the different years?

A. I have based that estimate on my judgment of the rate at which the business would be developed.

Q. In other words you have increase, as I remember it, between the year 1914, that is, the increase in the year 1915 over the business or sales of 1914, of 208 per cent; now you of course simply guessed at that, did you?

A. No, sir.

Q. How could you arrive at it in any other way?

A. That is the result of a careful estimate of the development of this business based on my experience of the rate at which construction work of this kind could be reasonably carried on.

Q. Why didn't you take the plant already here and start with

that as a basis of your calculation for growth and take the actual growth as it has been demonstrated here to base your figures on that?

A. The figures that I had were based partly on the growth
1488 of the city. The estimate of the growth of the going plant, that is, the estimate of the increase of sales of the actual or going Des Moines Gas Company in arriving at that I took into consideration the probable growth of the city.

Q. But how could you double, more than double the sales in the one years between 1914 and 1915; how did you figure that?

A. Well, that is estimated on the basis of the comparative plant, and you will remember that the first district of mains were laid, were estimated as laid and the services estimated as laid in the year 1912; and in the year 1913 the mains and services of *of* district number two were estimated as laid; therefore the rate of construction going on, new mains to cover new territory is as estimated and that in itself is estimated to cover gradually the ground each year.

Q. Yes, I know; that simply goes back to another guess or estimate. You worked that out in your own mind, the amount of mains that might be laid; you did not take the present plant and take any years of its existence to find out how it grew with respect to the laying of mains?

A. In my estimate of the going plant and in my determination of the average age of the mains you will find I have used a table showing the actual feet, each size of main laid each year of the actual Des Moines Gas Company from the year I believe 1887 up to and including the year 1910; I had those actual figures.

Q. Now, Mr. Baehr, if any of these columns of figures should turn out to be radically wrong, then your whole scheme of valuation falls?

A. No, sir; I do not see how much an assumption could make my whole scheme of valuation fall.

Q. Doesn't all of your valuation of this plant depend upon
1489 this so-called comparative plant; isn't that the way you worked out the valuation?

A. I used the method of the comparative plant for the purposes of basing my judgment of what the going value of this plant is. In the reproduction of such a thing as a building or water gas set I cannot see how the two tie together.

Q. But you tied the valuations all together. Isn't it true that your valuation, your final amount there that you fix as the value of this plant is worked out on this comparative plant system and depends upon the accuracy largely of your judgment as to those subsequent events, isn't that so?

A. I believe that the features or details of the operating costs of the comparative plant depend upon my judgment, but that judgment is based on the results accomplished here and on my general experience.

Q. But there is no way, of course, for us to separate what weight or how much your general experience figured in here; how much you based those figures on actual conditions in Des Moines. If, for instance, it should turn out that these estimated earnings were much

less than what you estimated them, that would disturb your whole scheme of your comparative plant and your going plant too, as far as that is concerned?

A. If the estimated development of the comparative plant, that is, if I have estimated that development has been too quick, it would tend to raise the going value, it would tend to exaggerate it; my estimate is based on my judgment as to what is a fair and reasonable amount of time to accomplish it.

Q. Yes, but all these figures must be here for some purpose; does your valuation rest largely upon these figures showing the comparative growth of your comparative plant, that is all I want to

1490 know.

A. My judgment of the going value is based to a large extent, to some extent at least upon the result of this calculation.

Q. That is true of going value and true of the taxes and interest?

A. I used my best judgment in arriving at these results, yes.

Q. The whole thing depends whether the scheme you worked out here works out finally, in the end?

A. If I understand you, the going value calculation, that is the result arrived at in the going value calculation depends on the length of time assumed for the business development.

Q. I was not quite ready to get into the going value question, but I want to ask you this question in that connection: now your final figure of the total valuation of this property of course would not be the same as it is if you had estimated the taxes one hundred thousand dollars less, would it, or one hundred thousand dollars more?

A. If the taxes had come at one hundred thousand dollars it would not accord with my judgment.

Q. And if they had come at one hundred thousand dollars more, it would not accord with your judgment and your figures would not have been the same if your judgment had been in favor of one hundred thousand dollars more taxes?

A. These figures are the result of my judgment.

Q. That is exactly what I am trying to get at, and the whole scheme depends on the accuracy of your judgment, that is true?

A. If I understand just what you mean by the term judgment in that respect, I think I could answer you.

The MASTER: Judgment is the conclusion reached; is it your judgment those things will happen, that is what he means by it.

A. Yes, it is.

1491 Q. What I mean of course in addition to the suggestion is, in every case now, of course, is there any single item in here in your report the value of which is fixed in any other way except upon just your estimate and judgment as to what it is worth?

A. In order to answer that I would have to go through all the figures again.

Q. Can you think of any one thing now, except the real estate?

A. Excepting the real estate, yes.

Q. So that there isn't any item in the whole list upon which you

fixed a value that you got from any actual existing figure showing the costs?

A. Well, I based my judgment, you understand, on a great many things.

Q. In the end it was altogether judgment?

A. I used my judgment on all figures.

Q. If they didn't suit you, you raised them or lowered them, whichever you thought was the thing to do?

A. I exercised my judgment and treated them accordingly.

Q. You referred to surplus capacity in this plant. I wish you would tell the Master how many miles of main the plant just as it stands today would carry?

A. Do I understand you to mean by that that the plant as it stands today, how many miles of main it would serve in Des Moines?

Q. I mean the first of January in all these questions.

A. The capacity of this plant, I am speaking now of what I call the net, safe manufacturing capacity, I figure the net manufacturing capacity at three million cubic feet per day, with the exception of the purifiers which have a lesser capacity.

Q. That is not exactly an answer, but I will put the ques-
1492 tion in another way——

A. I was coming to that. Now the number of miles of main a plant like this could serve depends on so many factors that I doubt if I could answer it.

Q. Don't you have a general knowledge about that, take a city the size of Des Moines with a plant such as this is and apparatus and so on, about the usual average number of miles can be served by that sort of a plant?

A. That varies a great deal Mr. Byers, and with different plants and depends——

Q. How many miles did you put in your new comparative plant?

A. Up to January 1, 1911, I estimated the miles of main of the comparative plant would be to reproduce those existing in the Des Moines Gas Company.

Q. Let me put it in another way: How many additional meters could be served on this line just as it stands by this plant in thousands?

A. I don't believe I can answer that question.

Q. Give us your best judgment.

A. The number of meters—I am reasoning out loud for a moment—the number of meters on January 1st was approximately 20,000. The maximum day's sent-out was some over 2,200,000. The plant with its present capacity could serve some additional meters, but I do not believe I can hazard a guess because I am afraid it would be only a guess.

Q. How many additional services—would you answer the same way as to services?

A. I think I would be obliged to.

Q. How much additional output of gas then could be made, put it that way?

1493 A. If you mean by that that the mains have capacity enough to take additional gas, I would say they could take some additional gas.

Q. Well, how much, give us your judgment?

A. That again, Mr. Byers, depends on so many factors, it makes a definite answer to that question almost impossible.

Q. You would have to have time to work it out as you worked out these other matters in your report?

A. I would be obliged to assume a great many conditions and would have to go through a great deal of work and then I would have to give you a dozen different kinds of answer on that.

Q. All right, we will let it go that way then. Now can you give us an estimate as to how much additional gas or extra gas over the present output could be taken from the works by the mains that are in and say carry it a half a mile or a mile?

A. I think that question ties right in with the previous one; I would have to make my answer in the same way, because in my previous answer I was talking about capacity of what is.

Q. Of course, if you were going to build a gas plant somewhere or recommend it, you would have to figure it all out?

A. Certainly.

Q. There isn't anything amusing or awkward about the suggestion?

A. Not at all; it simply involves a great deal of engineering work and computation.

Q. Now, in estimating the expense or rather the additions that must be made to this property in the next seven years, or the period you have used, as I remember the figures, they sum up to about $1,056,000.

A. That was on the assumption of a three million foot holder being constructed in that time rather than a two million
1494 foot holder; the holder figure was $250,000.

Q. And sixty miles of main—now you must have gone through that process of determining the amount of gas this plant would carry and the number of miles of mains that would be necessary in the future—I don't care to haggle about that at all, but you put the additional mains at $400,000 and the meter services at $150,000 and the increased population at 20,000. Now would it be a safe method if we want to check up on your judgment for us to take the same period in the life of the present gas company when there was an increase of 20,000 in the population, and ascertain what additions were made to the plant to take care of that as it actually existed here in Des Moines, would that be a safe thing for us to do?

A. Why, I based this entirely on percentages, and I think that takes experience, Mr. Byers, to do that.

Q. You could have told to a cent, couldn't you, just how much money the Des Moines Gas Company had expended in additions that were necessary to take care of an increase of 20,000 in the population of Des Moines, couldn't you?

A. Not to a cent, no, sir.

Q. Of course, I used that word cent like millionaires use it.

A. In making up my estimate of the future construction requirements I based that on a percentage method. There are so many things to take into consideration that a detailed estimate such as I think you have in mind would take a tremendous amount of computations and drawings and all that sort of thing.

Q. Now the very fact that you have to solve the problem in the way you say by taking into consideration so many things and then using your judgment upon many of them as to how they
1495 appeal to you and satisfy your judgment, wouldn't it be a good deal safer and a better way to determine what that expenditure would necessarily be by consulting the past and what actual years in Des Moines have shown was necessary, wouldn't that be better?

A. I think if I understood you, for the purpose of making an estimate of the construction requirements as it is wanted, this method I have used is sufficient.

Q. Well, sufficient for the Gas Company, but how about the public and other people interested in having the thing worked out so that it will be helpful to them?

A. Those figures are reasonably accurate.

The MASTER: Does net income have anything to do with the going value?

A. Yes, it is one of the factors of the going value calculation.

The MASTER: Suppose the physical valuation as you made it is $2,711,271.

A. That is without the going value.

The MASTER: Now what income would you expect on that in order to use the going value?

A. That amount is used in figuring interest on unemployed capital for the comparative plant.

The MASTER: What rate of income, suppose it was only one per cent on that amount, would the plant have any going value?

A. Yes.

The MASTER: If it was only one per cent on that amount?

A. If I understand you, you are referring to the going value calculation.

The MASTER: I am referring to the actual going value. If there was one per cent net income on the $2,711,271.

A. The income is one of the factors entering into the
1496 determination of going value, and if that varied it would produce some variation in the going value; I did not get your idea at first.

The MASTER: Did you figure six per cent on that amount?

A. I did not figure any rate of return on that; I took the present rate for gas, rather the rate of January 1st.

Q. Now, Mr. Baehr, let me test that proposition we were dealing with a minute: assume that during the last seven years the population of Des Moines had increased 30,000, and then if it should appear that the Des Moines Gas Company, which during that period was the only company furnishing gas in Des Moines, had only been

compelled to spend $500,000 to take care of that increase in population, in additions to its plant, which figure would you rather take, what it had actually cost this company to take care of an increase of 30,000, or take the estimate you make to be necessary to take care of an increase of 20,000.

Objected to on part of complainant as not a proper hypothetical question, and because the increase in population in the last seven years is nothing like 30,000, and because there is no evidence as to the actual amount expended. I think the court will take judicial notice of the census and will note that it is considerably less.

A. I would place reliance on my own estimate.
Q. Rather than the actual situation if you could ascertain it?
A. As you put it, yes.
Q. You looked these buildings all over down here?
A. Yes.
Q. You included in your report the valuation on real estate?
A. Yes.
1497 Q. And also on the buildings?
A. Yes, sir.
Q. Do these buildings add anything to the value of that real estate?
A. I considered the value of the buildings entirely separate from the real estate.
Q. I understand that; suppose that property was st-ipped now of the gas apparatus, take the naked property, the real estate with these buildings just as it stands, would the buildings add anything to the value of the real estate?

Objected to on part of complainant as irrelevant and immaterial and not based upon any hypothesis or fact.

A. I would estimate the ground would be worth without any buildings on it, at least as much as I have estimated it.
Q. That is not quite and answer. Strip the property, take the apparatus out of it, leave nothing there but the buildings and the land—you have explained that it is not accurate, and that you do not expect anybody to place any considerable reliance on your valuation of the real estate, because that is what somebody else furnished you—now I want to know your judgment as to whether the buildings add anything to the value of that property down there, the real estate?

Same objection as last above made, and it is not cross examination and the witness is not an expert on real estate.

A. I cannot understand what is meant by that, because I never considered it in that way.
Q. What I mean by it, the rule as I understand it with respect to this class of property and this class of cases, unless buildings add something to the real estate value they are not to be considered; so I want to ascertain whether you considered them because
1498 you thought they added value to that real estate.

Same objection as last above made.

A. I do not believe I can answer the question, Mr. Byers.

Q. Well, you have placed a value of $86,000 on these buildings down there—I am not pretending to be accurate—now then, would those buildings be worth that with the gas apparatus out, out of the building and off the property, leaving the buildings on the real estate, would they be worth any such sum of money?

Same objections as last above made.

A. I estimated those buildings as of themselves, just took into consideration the actual material and labor going into each building.

Q. You don't quite answer the question yet——

The MASTER: He wants to know what they would be worth for anything else?

A. My estimate of the buildings would be unchanged.

Q. They would be worth it just the same?

A. The buildings, yes.

Q. Why did you refer in your examination in chief in speaking about their valuation on your comparative plant to piecemeal construction?

A. Because in any gas plant there is piecemeal construction.

Q. There is no piecemeal construction in reconstructing a gas plant?

A. If the work is undertaken as a reconstruction proposition as a whole there would probably — very little piece meal construction, but the fact remains that piecemeal construction has taken place in that property and I feel it is fair that an allowance for that be made.

Q. Well, you didn't build your comparative plant by piecemeal construction, did you?

A. It is not estimated in the sense of a physical building in
1499 that way, but I do think it is fair to make some allowance.

Q. Did you see any indications of electroliers here?

A. I have not personally made an investigation.

Q. If there was such a condition existing, with respect to the mains, it would make a great difference in your valuation?

A. The present value of the mains service has been determined on the basis of composite age and composite life. If I knew the exact physical condition of the entire main system, I would exercise my judgment as to its value.

Q. Of course, if the electroliers existed to any considerable degree, then your whole computation as to the mains would be changed?

A. No, because I inquired to some extent about those.

Q. Anyway there is nothing of that kind here that you know about but you mentioned that inadvertantly not indicating there was any such condition here?

A. I do not believe I mentioned it inadvertantly.

Q. You didn't mention it on the theory that there was any such condition here now?

A. I believe I spoke of the electroliers as one of the unknown things we may have to face.

Q. You referred to a large number of gas properties you have been

connected with and many of them of which you had made valuations and referred in your experience generally with respect to the price of gas and the valuation of property and so on; have you in your comparative plant proceeded on the theory that the gas covering that period would be sold at a dollar per thousand?

A. The determination of those figures, rather that method
1500 of calculating the going value was as of January 1, 1911 and I took the price which was in existence at that time, which was one dollar per thousand cubic feet, a little over.

Q. It averaged something over a dollar because of this extra ten cents?

A. Yes.

Q. What effect do you think the reduction of ten cents per thousand would have upon the figures of your comparative plant, taking that as a basis?

A. That is a very difficult thing to answer. To use a figure of ten cents less would change the calculation to quite a considerable extent; I wouldn't want to say off-hand what the outcome would be.

Q. By what per cent would you say it would increase the sales as you have stated them in your comparative plant proposition?

A. I am not able to say that it would increase the sales at all, because my judgment in that respect is that there would be very little, at least not much difference between the sales at the dollar rate and the ninety cent rate.

Q. What was the result of the reduction of the rate of gas in St. Louis where you were so familiar with the situation?

A. This year?

Q. Yes and prior years.

A. In this year they made a reduction of the price of illuminating gas at St. Louis and I understand they are very much disappointed in the showing of increased business.

Q. When do you say they made the reduction?

A. On April 1st.

Q. Take the reduction just prior to the last one; how did the sales run?

1501 A. I was in St. Louis from 1903 up to the early part of 1909 and during that time there was no change in the price of gas.

Q Well, you understand, Mr. Baehr, I am asking you generally about St. Louis and the effect of the reduction of the price of gas in St. Louis on sales of gas; whether the sales increased or diminished, and I am speaking generally now referring to a period of say the last ten years?

A. I will try to answer that by stating that is one of the most difficult things that I know of, to state definitely, because in St. Louis during the time I was there there was a tremendous increase in the amount of mileage of mains and in the number of services and meters; not only in St. Louis but also in St. Louis County, the gas they had was supplied from the gas plants in the city of St. Louis. I do not believe I can give you any judgment as to the effect of prices on the sales of gas in St. Louis.

Q. How was it in Minneapolis?

A. I do not know.

Q. Isn't it true, Mr. Baehr, that while a low price of gas is a gain for the consumer, it is also a protection against competition either from new gas companies or electric light appliances?

Objected to on part of complainant as not being cross examination. There is no objection to counsel going into this if they want to make the witness their own witness.

A. I think that is a question involving so many considerations that I wouldn't want to undertake to answer that on so short thought.

Q. Well, in your experience in all these different matters you have spoken about the reduction in price resulted in stimulating
1502 the business of the gas company?

Same objection as last above made.

A. Generally speaking, which I understand, what you desire, the gas business has been increasing from year to year in the different plants with which I have been associated, and I cannot answer what percentage, if any of that growth was due to change in prices.

Q. You will say, however, I suppose, will you not, that there has been a gradual but constant increase in the sales of gas and quite a steady and quite a regular reduction in the prices?

Same objection as last above made.

A. Well, various companies from time to time have made reductions in the price of gas. Of course if you consider gas like natural gas which is sold at a very low price, the consumption of that gas per consumer is greater than the consumption of illuminating gas and that is sold at a very low price.

Q. Now, in a general way what is the difference or what has been the reduction in the general range of the price of gas throughout the country in which you have had your experience in the last ten years?

A. Well, during the time I was at Milwaukee there was no change in the price of gas.

Q. I am speaking now generally, in ten years, the difference between the price now and ten years ago generally?

A. I think the general tendency, considering it, I believe, as you are looking at it, has been to get to dollar gas.

Q. That don't quite answer the question.

A. I know it doesn't, but I am a little at sea, I don't quite understand what you want.

Q. You know about what the general range of prices of gas
1503 was ten years ago; what is it now compared to ten years ago, if you can tell me.

A. I do not believe I can tell you.

Q. Mr. Baehr, as I remember it, the difference between the gross revenue on one hand and operating expenses and taxes on the other for the year 1910, according to Mr. Lea's curved sheet, a blue print of which you have, was in round numbers about $175,000; now you in your computation here and in your exhibit 21 have figured

upon a depreciation fund of ten per cent as I understand you, on the gross revenue, which would be in round numbers $53,000; now that would leave for the year 1910 a net profit to the Des Moines Gas Company of $122,000; now with that figure in mind, a net profit of $122,000, you fixed the present value of the property of the Des Moines Gas Company, as I remember it, and have it on my notes here, on page 17 of your Exhibit 21, at $3,221,166. Are the figures right?

A. That last figure is.

Q. Now your computation and scheme of figuring it, or plan which ever is the better word, of figuring out going value resulted in the figure of $509,795.

A. Yes.

Q. Now subtracting the going value from the present value, as you give it on page 17, would leave, if I had made the correct substraction $2,711,371.

A. Yes.

Q. Now assuming those figures are correct, and the amount shown by Mr. Lea's curved sheet was the net profits, and that the ten per cent was taken out, $122,000 is the net profits, now the $122,000 would be a profit as I figure it of 4.5 per cent, do I have it
1504 right?

A. The percentage is correct.

Q. Now, then, how much would you have to raise the price of gas in order to get a fair return on that valuation?

Objected to on part of complainant as not cross examination.

A. I want first to correct a statement you made in reference to one of my figures. I have not used the depreciation as ten per cent; it is ten cents.

Q. Ten cents I should have said; and that would have amounted to $53,000?

A. For last year, yes.

Q. In round numbers it would be 53,000?

A. Yes.

Q. How much would you have to raise the price of gas in order to produce a fair return on the valuations that you figured out?

Complainant interposes the same objection last made.

A. I wish to state that I cannot answer your question, Mr. Byers, for the reason that I do not claim to be an expert on fair return.

Q. You are an expert in the gas business, and you have as I understood you in your examination in chief, made valuations for bond companies and for people who contemplated investing in gas plants and who contemplated the purchase of gas plants and you made numerous valuations for the owners of gas plants for the purpose of arriving at a valuation?

A. Yes, sir.

Q. I want to put this question to you and I think it is entirely a fair one: If instead of being called upon as you were here in this

particular case to furnish a valuation for this company or
1505 fix a valuation upon its property for the purpose of using in this trial as evidence, you had been called upon by some person who was about to invest his money in the gas plant in Des Moines, and he had employed you to come here to go over this property carefully, examine into every detail with respect to the character of it, quantity and quality and all that sort of thing and fix a value upon it on which you would be willing to advise him to make a purchase, and you had come here and gotten all the information that you did about the physical property and had worked out the valuation just as you have here until you found a total of $3,221,166 just as you have given it here, and then when you come to make up your report you checked over your figures and you found that the actual earnings of this company in this field, equipped as you found it on the first day of January 1911, the actual net earnings of the company was only returning one and one half per cent, or four and one-half per cent, either, on your valuation, would you advise your client to buy the plant?

Objected to on part of complainant as not cross examination, merely argumentative, irrelevant and immaterial.

A. If I had found that the return was only one and one half per cent I certainly would not advise him to purchase the plant.

Q. At the valuation you had found?

A. Yes.

Q. Well, how about the four and a half per cent?

Same objection last above made.

A. When you get into the question of what a man might be willing to take as a return on his money I must state that I am not an expert on a matter of fair return.

Q. You are an expert on values?

A. I think I am.

1506 Q. Let us put it in another way and see what your answer would be. As I remember it, in your explanation and in your definitions at the beginning of your report, among other things, you defined this so-called going value as a created income; now keeping that definition in mind, if after you had made up your figures just as you have, you had found by actual computation that the net earnings of the business of this company would not pay a return over say three per cent or four and a half per cent on your $2,711,371, where would your created income be for your going value?

A. In answer to that question I would say that my judgment of going value rests upon the facts of the net earnings, or rather my best estimate of the net earnings of the going and comparative plants, and in order to form a different judgment I would have to have a set of conditions entirely different than they are here, or were here on January 1st, 1911.

Q. I know, but testing your theory or proposition, what would your going value, your $509,795 be worth to anybody if it didn't

earn anything; what would it be worth to your contemplated purchaser or to a man who is going to invest his money, if it was not earning anything or could not earn anything.

A. The question of the amount of going value in case the property earned nothing and could earn nothing, that would of course affect the going value.

Q. It would wipe it out entirely, wouldn't it?

A. Well, if over a number of years into the future, I mean a considerable number of years, it was known definitely or as surely as anything can be estimated into the future, that a property would have no net earnings, as a practical proposition, the going value would be very small.

1507 Q. The property would simply be worth whatever it would sell for junk—now let me put it in another way and see if we can get any further light on this. If I understand your method now is a scheme that has been worked out here and you put in this going value just as you put in $509,000. worth of apparatus.

A. I added that $509,000 to the capital account as an asset of the company.

Q. You didn't add it to the capital account?

A. I consider it an element of value to the property.

Q. If you added that to the capital account you simply have $509,000 surplus capital; you wouldn't want to figure that into the value of the property for rate making purposes?

A. Perhaps I didn't make myself clear. In estimating the value of this property the amount of $509,795. I have added to the total of the real estate, buildings, mains, etc., and working capital, in order to arrive at my total present or depreciated value of the property.

Q. Well, now if in going through the company's business here you had found among other items of property a surplus of cash of $509,000 would you figure that in here in this valuation for the purpose of this law suit to make rates, if the company had $500,000 odd dollars in cash on hand?

A. That cash is always worth cash.

Q. Yes, but should it be figured in the gas property for manufacturing property?

A. I don't think that exists.

Q. If you had found it you would not have figured that in, would you?

A. Well, that depends on just what that cash was, what it represented.

1508 Q. Well, if it represented undivided profits laying there, simply undivided profits belonging to the stockholders of the company, you would not figure it in as a part of the valuation of the property, would you?

A. I would not considet rhat over and above a fair working capital in arriving at my value of the property, taking into consideration all the other items.

Q. Now, Mr. Baehr, since you put this value $509,795 just as Mr. Lea did, into the value of the property of the company, just as you would a holder down here at the plant, I want to ask you this question: If there was a golder down at the gas plant, no matter what

its size, that was not used in the making of gas at all and was not earning anything for the gas company, and not performing any part of the business of manufacturing gas, you would not put that in would you?

A. If I understand you, you mean that such a holder would not be used or useful in the business.

Q. Oh, it might be useful if somebody wanted to use it; but it is not earning anything; they aren't using it?

A. I don't say I would not consider it, because that holder might be going to be put into use.

Q. What I am trying to get at, Mr. Baehr, just how you get a going value into a property without in some way making it an earning factor in that property; that is, when you are dealing with a gas plant that is in the business of manufacturing gas—I will put another question to you in this way: Assume that six per cent is a fair return upon the property actually used in the business of manufacturing gas in Des Moines; now assume that the net earnings of the Gas Company in Des Moines would furnish a return, produce a
1509 return, of six per cent up in a valuation of $2,000,000 and no more, and the value of the actual physical property now of the company was $2,000,000 and no more, I mean when I say physical property the actual property itself without these additions, could you figure out any going value there?

A. I believe there would be a going value.

Q. What would it be?

A. I can't tell you in dollars.

Q. No, but how would it be valuable to anybody?

A. That affects the question of the rate of return.

Q. That is exactly what I told you. Assuming that the rate of return is a reasonable rate, six per cent on $2,000,000. that that is all this company is earning on that valuation, and that is the value of its physical property, there wouldn't be any going value there, would there?

A. The proposition as you have stated it resolves itself in my mind into the fact that the actual value of the property considered as a whole and considering every element was unchanged, but that the rate of return on the whole property is less than six per cent, as you stated.

Q. Then the value does not depend on the profits at all?

A. In making a valuation of this property the items up to and through the physical equipment and working capital are not based on any propositions of profits, but on what it would cost to reproduce that property.

Q. You can't have a going value without earnings?

A. That depends as I stated a moment ago, if the property according to your best estimate and judgment will not have net earnings over a number of years.

Q. It wouldn't be of any value then, would it?

1510 A. That would reduce the going value to practically nothing.

Q. The truth of the whole business is no one has ever been able

to work out any intelligent basis for fixing going value except upon the basis of early losses?

A. I am not willing to say that.

Q. Who ever had figured it out before this law suit?

A. I think this method of figuring going value is entirely logical and sound.

Q. Going back again, then, to the question that we have been having up for a few minutes, you would not contend to the Master or anybody else that any item ought to go into this total valuation that will not produce revenue, would you?

A. I consider this item of going value as a fair element of value of the property.

Q. You would not claim for a minute to the Master here as an experienced gas engineer and a man of affairs that a single item of property ought to go into this valuation that does not represent a part of the earning property, of the whole property, would you?

A. If I understand you rightly I might answer in this way by saying that this item of going value may be measured by the losses incurred in the development of the business and I will say further that I consider that a fair element of value.

Q. You haven't answered my question. Let us take it this way now and see if we cannot get together: Suppose at some early day in the operation of this present plant or at some time in the past they bought some apparatus, or machinery with a view now of using it in the gas business in Des Moines; they get it down here to the plant and set it up and they found it could not be used here at all,
1511 it is there as a part of the plant, a part of the property, but cannot be used for the purpose of producing gas, and by producing gas producing revenue for the company, you as an experienced gas engineer and witness in this kind of a case would not ask the Master to put that property in at any value?

A. If the management of the company purchasing that apparatus had exercised a reasonable degree of intelligence and knowledge of the business, if they had looked out as well as they could at the time for the interests of the company, I would say that company was entitled to earn on that property.

Q. But I say they cannot use it at all—suppose you get a contemplating purchaser and you are making up a valuation of the property for the purpose of advising the purchase, you would not want your client to pay anything for that apparatus; you wouldn't let him, would you?

A. To start with, I cannot conceive of such a condition existing.

Q. But I want to assume it existed, is not what you would do in that case and isn't that the only rule that has so far been adopted by any court or commission so far as you know in rate making cases, and not by any court as I remember it, even in a rate case, that if in the instance I have cited the company had lost because of this property, and as you say had exercised the best judgment they had, but notwithstanding their good judgment they had suffered some losses, you would measure that, cut by the value of this useless piece of property and you would measure it by the amount of that loss, the money they invested at that time?

A. I presume the amount of that loss would represent what
1512 that particular apparatus you have in mind would cost?

Q. That would be all that company would be entitled to, if anything at all, to have considered as a part of their property?

A. I would not want to answer that without giving it further consideration.

Q. Didn't you in answer here, you did say in one of your answers here, I have the note here, my method is based on early losses. The truth is you did not pursue that method at all, but you accepted the same method Mr. Lea has of taking the difference between the prospective earnings of a comparative plant and your estimate or figures of the earnings of a going plant, and in that way you found a sum here that did not represent anything except the difference between those two figures?

A. To start with, I do not recall using the words you have used; but I believe I said that the going value is sometimes measured by the losses incurred in the development of the business.

The MASTER: What do you mean by that, losses?

A. The losses incurred which may be represented by a deficit in return.

Q. If your going value is represented by early losses as distinguished from created income, then no more should be allowed, I suppose, than just enough to recoup those losses, that would be your idea?

A. I haven't made any investigation into the early losses. I do not believe I can answer that question at the moment.

Q. Let me put it this way, assume a situation like this: here is your gas company in controversy about rates—let me put it in another way; it is conceded by the company and by everybody else involved in the controversy that the gas company in establishing its business suffered a loss of say $100,000 up to the date that the
controversy is being had, and that those were due to the
1513 hazards of the business that they could not control, and had suffered that loss up to the time when the return on their investment was furnishing that fair and reasonable return they ought to have, now that $100,000 measured all that that company should have over and above the physical value in your judgment?

A. If that $100,000 represents the total deficit in net return, that would be a subject which I would give serious consideration in arriving at a judgment of going value.

Q. Assuming that represents exactly the amount of losses and that since the time that the company began to make a fair profit it had not yet got a fair return on its money, would you say it was fair, at least, to not go above the $100,000?

A. I would like a little time to consider that, Mr. Byers.

At this time an adjournment was taken until 1:30 p. m.

1514 1:30 P. M., WEDNESDAY, AUGUST 2, 1911.

WILLIAM BAEHR being continued on cross-examination by Hon. H. W. Byers, testified as follows:

Q. Have you any further suggestion or answer to make with respect to the last question that was put to you Mr. Baehr?

A. Was that the question in regard to the early losses.

Q. Yes.

A. Yes, sir; the method of calculation that I used is not based on the early losses but we reproduce these losses at the present time. That is the early losses were incurred years ago and this method of measuring going value is to take conditions as they are and reproduce the going value at the present time. That is different from the early losses in that respect.

Q. Well why do you speak about early losses at all?

A. You asked me the question.

Q. No, but in your examination in chief?

A. I have forgotten that I spoke about that Mr. Byers.

Q. That is not material now, but at any rate your idea and the idea generally of gas experts in working out this plan you have adopted here or theory is to in that way recoup whatever ea-ly losses the company may have suffered.

A. That is I approached the problem in that way as an engineer.

Q. Well now then suppose you were dealing with a company that had some early losses, that is did business during its existence for less than a fair return upon its money and the difference between a fair return and what it got representing its fair losses and during the later years of its existence it had more than recouped their
1515 losses by increased earnings *earnings* that were above and beyond what would be a reasonable return upon the value of the property, what effect would that have upon going value?

A. The calculation would be based entirely on conditions as they are at the time of the valuation.

Q. Well suppose that was the condition at the time of the valuation. Take the Des Moines Gas Company itself, suppose that an examination of its records from its organization down to the time you were called upon to put a value upon this property for rate making purposes ,ad more than made up all of its losses by its earnings under a rate for gas that wiped out all early losses and gave the company more than a fair return upon the value of the property, what effect would that have had upon your estimate of this so-called going value in this case?

A. I would make the estimate of the going value based on the conditions as I found them at the time of the examination. That is I would try to reproduce the property and the going value in the same way.

Q. That is to say you would work out this going value amount in the same way you did in this case even though the losses whatever they were had been wiped out and more?

A. I would make my calculations in the same way.

Q. Returning again to figures for a few minutes Mr. Baehr on present value as shown in your Exhibit 21, page 17, a six per cent

return upon the present valuation as you fix it $3,221,166 would produce $193,270 as I make it.

A. About that yes.

Q. And assume that the profits of the Des Moines Gas Co., as worked out by this curve sheet as shown in Exhibit 20, Mr.
1516 Lea's report less your depreciation ten cents on a thousand feet of gas 122,000 the increase or difference would be $71,270.00 and I figure that would amount to 13.4 cents a thousand that would have to be added to the dollar rate to furnish six per cent on your valuation. That is about right isn't it?

A. I think that figure is approximately correct.

Q. You set out certain figures on page 144 of your Exhibit 21, purporting to show amount of unaccounted for gas. Is any part of that represented in street lighting?

A. The street lighting as I understand it is taken care of in the sales, that is it is taken care of in the accounted for gas.

Q. You know about the company having a contract with the Welsbach people to furnish gas to them for street lighting purposes?

A. Yes, sir.

Q. What I was wondering was if you knew that in that item of unaccounted for gas any part of the gas that was used in these lights was represented, as I remember it you stated that the unaccounted for gas represented all of the gas sent out, metered out and not accounted for through the consumers' meters, the difference between the two?

A. Also in street lighting.

Q. Well you put that in now.

A. Yes, sir.

Q. That would make your answer more clearly correct than to say that——

A. Yes, I was speaking more generally at that time as to what constitutes unaccounted for gas so as to give a general definition.

Q. When you used the terms you did, the difference
1517 between what was metered out at the plant and what registered by the consumers' meter that would include what went to the Welsbach company wouldn't it?

A. Yes, sir. But this unaccounted for gas takes consideration of the gas used by the lamps.

Q. Now there is another point I don't think is entirely clear in your answer that I think ought to be cleared up to be fair to you. There is a large amount of gas consumption of the amount manufactured down here that goes to Valley Junction. Is that included in any way in your figures in unaccounted for gas.

A. It is in the figures on page 144, but in the going value calculation I have allowed for that portion going to Valley Junction.

Q. Do you have any figures handy there from which you could give us the average monthly or average annual feet that goes to the Welsbach people and the Valley Junction people?

A. I can tell you the sales to Valley Junction in 1910 and they amounted to 6,889,100 cubic feet. Now the amount of gas for street lamps I believe I can give you.

Q. I find here on this sheet you furnished street lighting 8,561,554. Tat I suppose appears in your report there somewhere?

A. I don't believe that shows in my report, but I have information as to that.

Q. Do you find the figures?

A. I have got a figure of sales to public lamps, public street lamps in 1910 of 8,546,498 cubic feet and to private lamps 15056 cubic feet making a total of 8,561,554.

1518 Q. Do you know what is included in these private lamps, what lamps they — and where they are used?

A. No sir; I do not.

COURT: I wish you would give those figures again.

A. Quantity of gas sold in 1910 to public street lamps I have as 8,546,498 and the amount sold to private lamps of 15,056 cubic feet making a total of 8,561,554 cubic feet.

Q. Do you know Mr. Bachr whether in this 8 million is included park lights?

A. I didn't go into the details, I can't tell you that.

Q. I noticed you called it street lights and I wondered if it covered park lights. On page 71 of your report you have meters costing $16,208 that you have given an average age of 29 and one half years. Do you mean by that that these meters of any of them are still in use?

A. There may be some of these meters in use today.

Q. Do you mean that all of them are in use or that there just may be now and then one?

A. I would be unable to say whether these meters were in use or not. There were installed at the end of 1886 all told 1261 meters and whether these particular meters are all in use now or not I am unable to say.

Q. How is it possible to get the average age of meters if you do not know, other than just a forced average which you make yourself?

A. I have made the best estimate of the average age that I could with the information at hand.

Q. So that average age as a matter of fact is based to some extent on your judgment independent of any existing facts in the

1519 as company's property?

A. This is based on the fact as I assume it to be a fact, that there were 1261 meters installed at that time.

Q. But not upon the fact that 1260 are still in use or any of them so far as you know?

A. I can't say that these 1261 meters are in use today.

Q. If the question was to get the accurate average age of 1260 meters installed in 1896, you would have to know wouldn't you just what years the meters were in use in order to get at the correct average age of them.

A. I think this average age I have assigned is perfectly accurate. The meters as you know are brought into the shop and repaired and used over again.

Q. Let me put it in another way. If there was not a single one

of them in use at the time you made your computation would it be accurate?

A. There were at that time the number of meters which I used and the record that I have gives the number of meters installed during each year since and the total is the amount of meters in use at the end of the year or rather on January 1, 1911. I assumed then that it is a fact as given to me by the company that there are 19,903 in use on January 1, 1911.

Q. That were in use for how long a time?

A. And I have gotten at the age in just the way I have shown and that is my best judgment of the method of getting at them.

Q. Were you informed that any of these meters or all of them had been in use that long?

A. I assumed that the meters would be treated as they are treated in any gas company, brought in repaired and sent out again.

1520 Q. Now I will put my former question to you because we don't seem to be getting anywhere on this proposition. If as a matter of fact there was not a single one of these meters still in use at the time these figures were given to you, your average age would not be very accurate would it?

A. In that case if these had been replaced by new meters the average age would not be as great as I have figured it and the present value would be higher.

Q. But that is not quite an answer. Of course to get the average age of a given number of meters by years, necessarily you must know must you not how many years each meter is in use and how many were still in use at the time you made your computation in order to get the average yearly life and existence accurately.

A. I think this method is perfectly accurate. I am afraid I have not made myself clear to you. When a meter is brought in you understand it is repaired and put in shape and sent out again. But if I understand you correctly you would assume that a meter that was bought we will say in 1864 has disappeared a long time ago.

Q. No, I have just a homely notion in my mind and that is the reason I am confused about this proposition, that where you have found the average age of a given number of articles, some one of them at least and a considerable number of them must at least be older than the average age.

A. That is undoubtedly true.

Q. Now if that is undoubtedly true, then it follows that you must have the time that each meter was in use and you must know in making up a computation of this kind how many are still in use in order to get anything like an accurate average age, else I

1521 don't know what you are trying to show by that item at all.

A. Well in my judgment this method is accurate in regard to gas meters.

Q. Does it mean then that some of these meters were in use 29 and one half years, is that what it means, I mean all of them?

A. It may be that there are some meters in Des Moines that are 29 and one half years old.

Q. This computation, by this you are referring to most all of them, if you are simply giving the average some of them were in a long time longer?

A. I will try to make that a little clearer. If some of these meters have disappeared there are new ones have taken their place.

Q. I know, but the other new ones are not in as long as the old ones?

A. That would decrease the average age and make the present value higher than I have assumed it in my report.

Q. I am not worrying about value now, it is this base figure here I am worrying about how that 29 and one half years, why we accept that as the average of the meters represented by that item?

A. I think that is as accurate as I can determine it and I think it is safe.

Q. When it is necessary to relay or repair mains or services un-*under* paving do you know how the cost of tearing up and relaying paving is taken care of,

A. I can speak from knowledge of what has been the custom, I cannot speak of what is the book record of the Des Moines Gas Co. in that respect.

1522 Q. Well generally if you can't as to this particular company?

A. Generally when a main which is under pavement is relaid or repaired, naturally there has to be cuts made through the pavement and that would be a repair account and the cost of that paving would go to repairs. If a service is repaired and a hole cut for that purpose through the pavement that would go into repair account.

Q. And finally get into operating expenses?

A. Yes, sir.

Q. In making up your figures of your comparative plant, do you assume that fixtures and other gas appliances are in the houses at the beginning of the making up of your comparative plant?

A. Yes, I assume the conditions here on January 1st, 1911, are just as they were on tha- date.

Q. Including house piping?

A. Yes, sir.

Q. And you assu*j*ed too at that time that the gas users in Des Moines had arrived at the same state of education on the 1st of January?

A. Yes, sir.

Q. Then if that be true just why did you take seven years to make your comparative plant cross or intersect the dividing line of the going plant?

A. Because I estimate based on my experience and judgment that that is the length of time it would take to reproduce this property and business where a man who is putting up the money to do this work would naturally desire to have it accomplished so as to get a return as soon as he could.

1523 Q. That is all in the field of speculation, judgment and opinion is it not? That is to say you might take a seven year period and thing that was the necessary period in which to

build up this business and another engineer might take a ten year period and still another one take a 26 year period?

A. No, I do not consider that that is in the realm of speculation. It is in the realm of judgment and estimate and if two experienced gas engineers were discussing this problem they would not be very far apart on the amount of work that could be accomplished each year.

Q. Well but they have been as far apart as seven years and twenty six haven't they?

A. I don't recall an instance of a variation of that amount, no sir.

Q. Well you do recall some very great variations?

A. In estimates of the amount of work done?

Q. The number of years now that it would be necessary in pursuing this hypothetical plant or comparative plant proposition for the purpose of ascertaining values, that is all a matter of opinion and judgment?

A. It is a matter of judgment based on experience.

Q. And I think you said before dinner you had used this same method you use here before?

A. Yes, sir.

Q. When did you first use it?

A. I used this method on two occasions prior to using it in the case that is now in court.

Q. I know, but when was the first time you used it, just as to the year, I don't care about the place?

A. In 1911.

Q. This same year?

1524 A. Yes, sir.

Q. I think your comparative plant begins to earn some money first in the third year, is it not, 1913 it begins?

A. I estimated gas would be turned on January 1, 1913 and that the earnings would start at that time.

Q. Why wouldn't you reach the average consumption of the going plant at that time if you have got the services all in and the people were all educated to the use and the fixtures were all there, why does it take any time to work up to this output of the going plant.

A. Because the reasonable amount of time required to lay all the mains and all the services is such that only the mains and services in District No. 1 are completed, at the end of the year 1912, in District No. 2 at the end of the year 1913 and in District No. 3 at the end of the year 1914. Now you must remember that it is assumed that the gas appliances, house piping and fixtures in the residences and in the buildings are in just as they were here on January 1, 1911, but it is estimated that during the years 1911 and 1912, no gas is turned on.

Q. Why not?

A. Well because you are just starting to build the comparative plant.

Q. I know, but why do you take all that time to build it if the demand is here, it is all prepared, the houses all ready and people

all ready to use it and the demand for gas is here why do you fool along for three years to commence serving it?

A. I do not estimate there would be any time lost as you suggested but I estimated that the rate of construction would be carried on as fast as it could be.

1525 Q. Do you also take into consideration, or was it part of your plan than while this comparative plant was being constructed and put into operation there would be competition in the gas business?

A. No, sir; I base my proposition on the assumption that I think it is most clearly understood if you assume a community identical with this one in every respect having all fixtures in the buildings and the people educated to the use of gas and then assume that there is no gas plant in that city you have got to build it, reproduce it and then start to develop business.

Q. Why develop business, the business is there?

A. From January 1, 1911, until gas is actually turned on in order to be logical it is necessary to assume that the people eat in the meantime and have light of some kind in the meantime but it would not be gas, naturally they would not eat gas but use it to cook with.

Q. Naturally have light or go to bed at dusk?

A. Yes, sir.

Q. In that connection Mr. Baehr why do you wait the other four years, why don't you take gas right away when you have got your plant finished and you have touched the button and started the machinery, why is it necessary to have a period of four years more in order to work out this scheme.

A. Because during two years that gas is not turned on it is necessary and people as I say have other means of cooking and lighting and when gas is turned on they would not immediately discontinue the use of the other appliances that they have put in, it is not logical to assume that they would do so and it is necessary to overcome the inertia of people.

1526 Q. I have had your testimony looked up Mr. Baehr, about your statement in chief and the basis you give for going value, it is found on page 1343 and you say this, and I only refer to it because it completes some of the questions I put to you about early losses and will bring to your attention just what you did say about it. In my judgment the method which lends itself to the most accurate computation and upon which I prefer to base my judgment of the going value of this plant is to measure the going value by the loss occurring during the period of development. Now the period of development of the Des Moines gas company of course was the early years of its existence, that is what you meant didn't you?

A. I see I did not make myself sufficiently clear. What I meant to say was that I was reproducing going value as well as the physical property.

Q. Well you did say that later?

A. And that this period of development naturally would have to take cognizance of conditions as they were the 1st of January 1911.

Q. Now you said this further which bears out exactly the notion I had in my mind in the questions. You say, in the instance of the Des Moines company I am measuring this loss by the loss incurred by the Des Moines company in developing its business to its stage and to the revenue as of January 1, 1911. Now applying that statement as broad as it is there to the actual plant itself and repeating one of my former questions to you if all those losses sustained by this company prior to and up to January 1, 1911, had been more than recouped by earnings of the company then
1527 on your own theory there would not be, could not be any just amounts for going value could there?

A. I believe the allowance for going value should be made.

Q. Just the same. Well now let's see. That to me sounds ridiculous, it may not be. Now this method of estimating going value is based on the idea of reproducing the entire physical equipment and the business of the Des Moines company in a given length of time. Now let us take the Des Moines Gas Co., and suppose that upon an actual demonstration it could be shown that for every dollar of money or property or time the Des Moines Gas Company had devoted to the business of supplying gas to the consumers the company had received from the consuming public more than a reasonable return so that on the 1st day of January 1911 there were no unremunerated losses upon the part of the gas company at all, it had already got its money all back and more and all it was entitled to. Would you still figure going value the same way?

A. You are asking me in that respect to assume a condition which I do not claim to be expert in, namely, the condition of fair return.

Q. You are to assume what I have stated in the question to be true and then give me an answer.

A. The only way I can approach a problem of this kind is as an engineer would approach it and if I were asked to value a property I would do so in that way.

Q. Just for a minute if you will get away from the engineering proposition, leave that out of the consideration entirely now, we are dealing with going value, that is not an engineering proposition at all. Now dealing alone with this question of going value it can have no other basis in your mind can it than simply making
1528 the gas company and its owners whole with respect to its investments, could not be any other theory upon which this item could be considered could there?

A. I think Mr. Byers that it is perfectly clear to me that in order to get as a developed business, that it costs money to get that business and as an engineer I would measure it in the way that I have measured it and I believe that that is an engineering problem.

Q. That is all right enough, but if that has been paid back they have that money, that has been made whole, made good then what about it?

A. I think going value exists just the same.

Q. The people have to pay it over again.

A. I am not saying the people have to pay it over again, but I am saying going value is there.

Q. Would not be there unless it earned something and if it earned something it has got to get that from the consumers.

A. It is part of the total value of the company.

Q. The consumers have to pay a return on that in order for it to have any value?

A. Well I consider it as a part of the total equipment of the company and business.

Q. Isn't this the position you finally *you* get yourself into that you do not deal at all with early losses, that early losses have absolutely nothing to do with your plan of figuring going value, your going value rests entirely upon a comparative set of figures the one set representing this going plant and the other a prospective or comparative plant to be constructed over a period of seven years, has nothing to do with the question of losses or whether they
1529 have been recouped or not.

A. The going value calculation as I have made it rests primarily on the fact that the company is a going concern and is doing business and is enjoying a revenue.

Q. How much of a revenue?

A. The revenue of the Des Moines Gas Company.

COURT: Let me see if I understand you. As I get your idea it is this. Here are two cities exactly alike, one has a gas plant like the one here and the other has none, hasn't any gas plant at all and the buyer has a choice between buying this plant here, a choice between taking one and building another one?

A. That is it.

COURT: Now then what you claim going value here is the difference between the present worth of the earning power of the plant as going and the one that you have got to reproduce, is that it?

A. That is it.

COURT: And without regard to whether the plant here in Des Moines is earning anything or not, that is net earnings?

A. I am using earnings of the company as they are.

Q. Then that brings you back to the proposition that losses cut no figure in it at all?

A. Well I can't conceive of any business, any company enjoying a business and having a connected business that has not cost money.

Q. How many dollars of losses is there in your $509,000?

A. That is my judgment of the fair amount to allow——

Q. The question is, how much do you allow for losses?

A. I don't know as I can answer that question.

1530 Q. Now Mr. Baehr have you got the three blue prints here?

A. Yes, sir.

Q. I wish you would let me have them please. Do you know who made them?

A. No, sir.

Q. Do you remember when they were delivered to you?

A. I wish to modify that former answer. I think they were made by some of the people connected either with the Des Moines Gas Company or the Unider Gas Improvement Company. They were delivered to me some time possibly two or three months ago, might be slightly longer.

Q. Do you have the detailed statement of gas sold from 1904 to 1910?

A. Yes, sir.

Q. I wish you would produce that. You have it there?

A. Yes, sir.

Q. Do you know who made that?

A. No, sir; I do not except I presume it was made by somebody in the company.

Q. Furnished to you by somebody for the company?

A. Yes, sir.

Q. Do you have the history of the price of gas as it was furnished to you?

A. Yes, sir.

Q. I wish you would let us have that. You have it there?

A. Yes, sir.

Q. Who furnished that to you?

A. The Des Moines Gas Co.

Q. Now do you have the records of mains laid by sizes during the years 1888 to 1910?

1531 A. Yes, I believe I have that.

Q. Please produce that?

A. All right.

Q. Cost of meters, do you have a statement somebody furnished to you of the cost of meters?

A. It was that same paper we were duscussing I believe yesterday.

Q. Is that the one you read in the record?

A. Yes, sir.

Q. Will you have the reporter mark there and you state what they are?

A. Defendant's Exhibit No. 9 is a blue print entitled Des Moines Gas Company Historical Development Curves No. 1. Defendant's Exhibit No. 10 is a blue print entitled Des Moines Gas Company Historical Development Curves hypothetical plant. In connection with this Exhibit No. 10 I wish to state there are some red inck lines which were made in my office.

Q. Perhaps it might be well unless it does show what they are for the purpose in making them it might be well enough to state just what the red ink changes represent?

A. These red lines there indicate the development as I estimated it. My report contains the figures, and that is just a picture of the figures. Defendant's Exhibit No. 11 is a blue print entitled Des Moines Gas Company Historical Development curves No. 2. Defendant's Exhibit No. 12 is a statement entitled Des Moines Gas Company, detailed statement of gas sold in cubic feet December 31, 1904 to December 31, 1910. Defendant"s Exhibit No. 13 is a statement consisting of four sheets entitled Des Moines Gas Company record of mains laid.

Q. Does that Exhibit show in addition to this record of mains laid the sizes?

1532 A. Defendant's Exhibit No. 13 shows the number of feet and sizes by years. Defendant's Exhibits No. 14 is a statement entitled Des Moines Gas Company, history of prices of gas. De-

fendants' Exhibits Nos. 15 and 16 are statements entitled Des Moines Gas Company statement of profit and loss.

Mr BYERS: As a part of the cross examination of the witness Baehr and for the purpose of assisting in the examination and consideration of his testimony and his exhibit 21, defendant offers Defendant's exhibits from 8 to 16, inclusive.

Q. Now just a few general questions. If you were called upon to construct a new plant to serve this field here, just as it was on the 1st day of January 1911, would you construct a plant just like the one that is here?

A. I think the present plant is efficient and if a man had——

Q. That is not answering at all.

Mr. GUERNSEY: He has not finished his answer.

Q. Of course I know what the explanation about that will be, but I just want to know of that was all there was to it, if you were called upon to construct for some client or was going to do it for yourself would you put in just such a plant as there is down here?

A. It might not be like that plant in every particular, but the important features are modern and satisfactory and I would use them.

Q. Now you know I didn't *you ask them* anything about what features or anything of the kind, simply wanted yes or no, whether that is the kind of plant you would construct?

A. Yes, sir.

Q. Now did you give any consideration in your report or in arriving at the values stated in your report to the original cost
1533 of construction of this physical property?

A. In arriving at my judgment as to the value I based it partly on construction cost not entirely, but based it probably mostly on experience.

Q. You considered that item to some extent, much or little?

A. I consider- it. yes.

Q. How about the amount expended in permanent improvements, Did you pay any attention to that in arriving at your value?

A. The only data I secured from the company -as the construction cost of parts not of the total.

Q. You didn't quite answer my question. I don't like to limit as fair a witness as you are if I can help it, but what I want to know *there* is just simply whether you considered the amount expended in permanent improvements by this company in fixing your valuation.

*Q*A. Will you kindly advise me if you mean the permanent improvements as it is on their books, the total of that amount?

Q. I mean just as they expended the money whether you considered that at all.

A. Only in a very general way.

Q. Did you give any consideration whatever to the amount and market value of the stock of the company?

A. I considered that in a very general way.

Q. Were you furnished with the amount of stock and its market value by somebody?

A. No, sir.

Q. Did you know anything about that aside from the information that might be furnished you by the company?

A. I have seen statements in such books as Brown's Directory of American Gas Companys which gives the——

1534 Q. That don't give actual value?

A. No it just gives amount of stock and bonds.

Q. Did you give any consideration or does your report show in any way that the master or counsel can determine how much if any importance you gave to the probable earning capacity of this property under the ordinance that is involved in this suit?

A. I did not consider that.

Q. I believe you said you did consider the operating expense quite an important item.

A. Yes, sir.

Q. Did you give any consideration at all in fixing your values to the cost of the present plant to the present company?

A. Meaning by that the purchase price?

Q. The cost price to this company, the present company was organized in 1906.

A. I did not look that up.

Q. And no one furnished you any information about it?

A. No, sir.

Q. Did you give any consideration and if so where can the details be found in your report covering the dividends earned in the past and paid to stockholders?

A. I did not consider that.

Q. Or surplus earnings still in the hands of the company and which has not been distributed to the stockholders?

A. I didn't consider that.

Q. Or surplus earned by the company and carried into capital?

A. I don't believe I can answer that question.

Q. Well did you give any consideration to anything of that kind aside from $150,000 you say you found the working capital?

A. This is working capital?

1535 Q. We are talking about capital stock now, not working capital.

A. I see. No.

Q. You have already stated that you do not pretend to know anything about what would be the reasonable return upon property here in Des Moines so of course you have not given that any consideration in arriving at your valuation?

A. I have not.

Q. I mean the reasonable return upon the value of the property used by the gas company in its business here in Des Moines. You don't pretend to know what that would be?

A. I do not.

Q. And didn't give it any consideration? Now I notice in a sort of an itemized statement here of organization expenses an item of $5000 for franchise. I don't quite understand that?

A. By that I mean the legitimate expenses in securing a franchise.

Q. What is the nature of tho-e expenditures?

A. Services of attorneys and hotel expenses and traveling expenses of men necessary to come here to lo-k after that.

Q. You regard it as necessary then to ha-e a franchise do you?

A. I assumed that a company that want-d to do business in the city of Des Moines would have to have a franchise.

Q. And how long a franchise did you consider in fixing the probable expense in getting it for $5000?

A. I made no detail of that account whatever. I made no detailed estimate of that.

Q. Would it make any difference in the value of the property whether the company had a twenty five year franchise or a perpetual franchise, would that make any difference in the value of the property as a going concern?

A. It would not change my valuation in any respect.

1536 Q. Would not re-uce it in any way if it did not have any franchise?

A. It would not change it no sir.

Q. You stated that you did give some consideration to the original cost of the construction. To what extent did you cover the original cost of construction?

A. I mean by that the bulk value of the plant.

Q. Did you have a statement of the original cost of the property of all buildings and apparatus?

A. No.

Q. Machinery and tools, monkey wrenches, wheelbarrows and so on.

—. No, sir.

Q. How much of it did you have any information about the original cost?

A. I believe I have enumerated the items that I got the cost of such as main pipe, fittings, specials, services, store room expenses and such items.

Q. Is that all now that you have information with respect to?

A. That is not all but I enumerated everything I had I believe yesterday.

Q. Have you furnished me a memorandum of all these items you have just mentioned that you had?

A. I have not furnished you all the memorandum no.

Q. I mean with respect to original cost?

A. No, I have not.

Q. What do you have a memorandum showing the original cost of, these buildings?

A. No.

Q. Any part of them?

A. No.

1537 Q. Of the iron?

A. No.

Q. Any part of it?

A. No.

Q. Of the services?

A. I have got a record of the actual cost of services laid.

Q. I wish you would produce that.

A. Yes, sir. Defendants' exhibit No. 17, is a sheet headed cost of services.

Q. And that is the sheet that you used in making up this report and fixing the values of the services?

A. No, sir; I simply studied that sheet.

Q. Let me put it in another way. It is the sheet you used——

Mr. GUERNSEY: I submit you ought to allow the witness to finish his answer?

A. I used this sheet merely as one factor in arriving at my estimate in the cost of services in Des Moines.

Q. That sheet is one of the things that you used to aid you in arriving finally at the valuation you fixed upon services.

A. Yes, sir.

Q. Did you have any memorandum of any kind purporting — the original cost of generators, holders, or anything of that kind?

A. No, sir.

Q. Any of the apparatus?

A. No, sir.

Q. And meters?

A. The only data that I had in the form of memoranda concerning meters is the one already read into the record.

Q. Now Mr. Baehr I would like to have Exhibit 8 for a few minutes for further examination, tha- is the pamphlet study
1538 of life in years.

A. I think I would like to have my attorneys say what to do in that respect.

Mr. GUERNSEY: We have no objections. I don't know whether Mr. Baehr understands the situation, this is his personal property, I don't know whether he wants to retain these or not, if they are offered in evidence, I think they ought to be copied.

COURT: Do you want to retain these?

A. I would like to as they are part of my material on which I base my report.

COURT: I was going to suggest that the reporter make copies of all of them and then you compare them and see they are right and then Mr. Baehr can have the originals.

Mr. BYERS: I would like before the re-examination is begun, I would like to recall Mr. Lea for a moment before Mr. Baehr is re-examined or excused.

1539 HENRY I. LEA being recalled for further cross examination by Hon. H. W. Byers, testified as follows.

Q. I wanted to know if you were furnished with a copy of what the reporter has marked Defendants' Exhibit No. 8 and what has been called by Mr. Baehr a study in life and age?

A. I believe I was furnished with a copy of this same thing, but I have never read it.

Q. Can you tell us about when the copy was furnished to you?
A. No.
Q. Was it before or after you completed your report?
A. It was before I completed the report.
Q. And who furnished it to you, do you remember?
A. I believe Mr. Klumpp did.
Q. Mr. Klumpp?
A. I think so.

Redirect examination by N. T. GUERNSEY, Esq.:

Q. How did he come to furnish it to you if you can tell us?
A. Mr. Klumpp had been working out a lot of figures on the different rates of depreciation on some assumed values. I don't know where these values were obtained nor what they were, but he was working out for his own information as I understood it some studies to see what the different rates compounded annually on different schemes would result in and as an abstract study I was naturally interested in the thing and asked him if he would not give me a copy of it. He said he would. He gave it to me, but I have never yet read it.

COURT: Didn't use it in yours?

1540 A. I used three pages from it in my report. I glanced through it and saw a table there of composite age of services and meters were in that book, those three pages I had copied and the balance of it I have not used in any sense.

Q. Referring to pages 10, 11 and 12, of your report, Exhibit 20, are those the three pages you have just referred to?
A. They are.
COURT: While Mr. Lea is on the witness stand I would like to ask him a question. Can you figure the cost per foot of relaying the pavement or refinishing pavement over mains?
A. Can I figure it, yes.
COURT: And for services?
A. Yes, sir. I have that already worked out in my room at the hotel and I can get it not if you wish or in the morning.

Mr. BYERS: I want the record clear, Mr. Lea is excused for the time being, but we will recall him under the conditions stated the other day.

Witness excused.

1541 WILLIAM A. BAEHR continued on cross examination by Hon. H. W. Byers, testified as follows:

Q. You stated early in your examination in chief, perhaps in your cross examination that when you were out here in January you were looming this plant over and made a sort of an approximate valuation of the whole plant. What was that valuation?
A. The amount of it?
Q. Yes.
A. My recollection is that the total reproduction new was something in excess of $4,000,000.

Q. And about what time in January was that?

A. I believe I stated I was here on January first and second.

Q. And was that the time that you put this valuation on the property?

A. Yes, sir.

Q. And did you state that to the gas company's managers about that time?

A. I believe I did.

Q. And Mr. Haines, did you furnish him your estimate at that time?

A. Yes, sir.

Q. Now how do you understand this property is assessed for taxation?

A. I can't tell you what the method of assessment is, except that the rate for 1910 was 90 mills on 25 per cent valuation.

Q. I know, but were you not advised that in this state manufacturing plants of this character are not assessed like other property?

1542 A. I will try to answer that in this way that the only advice I had was that the tax rate was as I have stated and that in addition to that there is two per cent tax on gross income and then of course the federal corporation tax.

Q. That is not what I mean.

A. That is all I know.

Q. In this state the method ordinarily is that real estate is assessed by itself independently and personal property is assessed separately, moneys and credits are assessed separately and as to practically everything except manufacturing property but there is no separate assessment on manufacturing properties and that assessment is made on the value of the whole property as a completed plant. Did you know that?

A. I did not. I took the taxes as they were paid, the amount.

Q. Your computation proceeds on the theory that all property whether it is worked up into the finished product or not, whether it is a machine or real estate or what it is it was assessed at 90 mills on the taxable value, assessable value.

A. The only way I use the tax proposition at all was to estimate the assessment and then take the rate plus the two per cent income and federal tax.

Q. If it should turn out the Des Moines Gas Company were not subject to assessment at all upon any of its property except after it is in the completed plant and is part of the completed plant, and then is only chargeable with taxes on the plant as completed and operating, would that make any difference with the method in which you figure out the taxes if you had known that?

A. I don't think it would because I used the rate of taxation that I was told was being paid.

1543 Q. I know, but you have charged up taxes on material and taxes on capital and taxes on idle money and taxes all along the line haven't you?

A. I have added taxes to the construction account according to the rate of two and one fourth per cent on full valuation.

COURT: On the amount of work done per year?

Q. On the amount of work done during the year, but on the assumption of taxes, that the rate of construction followed a straight line and therefore for the current year only half of that amount. So that if it should turn out that money invested in a manufacturing plant was not accessible or taxable at all, but that it was the plant itself after finished, upon which the taxes were levied, your method of figuring taxes would be altogether wrong wouldn't it?

A. Well, I don't know whether it would or not.

Q. Take your so called comparative plant you have got a lot of taxes in there the first three years haven't you before you get any plant finished.

A. In the comparative plant, I will find that exactly, in the comparative plant during the years 1911 and 1912, there are no taxes charged to operation.

Q. No, but are there any at all charged to anything? Of course you haven't any charged to operation because you were not operating?

A. There are taxes chargeable to the capital account during those years.

Q. That is true all the way through the whole period, taxes charged up regularly on all of these items according to the value of the separate items as you found it?

A. I didn't compute them separately on each item, but the total of my computation is shown in my report.

1544 Q. You need a percentage method to figure it in the total?

A. Yes, sir.

Mr. BYERS: That will be all the examination now, subject to recall.

Redirect examination by N. T. GUERNSEY, Esq.:

Q. Referring to this January valuation that you speak of. Have you in mind the affidavit that was made by you in connection with the application for temporary injunction or restraining order in this case?

A. That was what was in my mind, yes, sir.

Q. That is what you refer to. How much time were you allowed to look the thing over and make your estimate?

A. I was allowed very little time. It was a very hurried job. I was here two days all told.

Q. Did that valuation give what was then your best judgment taking into account the time you had to go into it and examine the plant?

A. It did.

Q. Now one other matter here that is not in order, but before I forget it. You were asked something about contractors' profits on holders and generators and things like that. I wish you would state, because I don't think your testimony is very clear on that,

whether you have added anything to apparatus, holders and generators and things of that character in addition to the price which the person who is supplying them would in your judgment charge.

Objected to as incompetent, immaterial and not re-examina-
1545 tion.

A. I did not.

Q. Are these things such as I have described ordinarily built by the gas company or ordinarily constructed by somebody else?

A. They are usually purchased by the gas company and erected by the company or party selling them.

Q. In other words they are bought set up in place?

A. Usually.

Q. And for a lump price?

A. Yes, sir.

Q. And in estimating these matters have you taken what you believe would be a fair lump price for them as they are ordinarily bought?

Objected to as incompetent, immaterial and a mere repetition.

A. I have.

Q. And to such prices have you added anything on account of contractors' profits?

A. I have not.

Q. It was this contractors' profit that the man who manufactures and sells these things makes that you said you could not compute and did not compute but was involved of course in their cost.

A. Yes, sir.

Q. Now then Mr. Baehr with reference to this Exhibit 8, will you please state just how you came to get it and what use if any you have made of it?

Mr. BYERS: That has all been gone over.

Mr. GUERNSEY: Hardly by me, has it, with this witness?

Mr. BYERS: Perhaps not.

A. I saw it in the possession I believe of Mr. Klumpp and I understood that it contained among other things studies on
1546 methods of depreciation and among other things a list of the meters installed each year from 1886 up to and including the year 1910. This particular statement of meters installed during these years I wanted and I asked for the book or pamphlet for that reason and it was given to me.

Q. I see on page 31 and page 32 there are some figures written in ink. Do you know when they were put there and by whom?

A. I inserted those ink figures.

Q. Now I wish you would tell the Master fully what if any use you made of this Exhibit 8 in connection with the preparation of your report, excepting as to this matter of age of meters which you have referred to.

A. I didn't make use of the report in relation to the age of meters. All I did was to take out of it the number of meters installed during the years 1886 up to and including the year 1910

and that statement did not take into consideration all the meters installed during 1910 and I made the ink corrections. Otherwise I made no use whatever of that report, merely glanced at it and am frank to say I don't know what it contains.

Q. You were asked by Mr. Byers whether if the plant had earned enough to reimburse itself for the original expenditure on account of the factor which we call going value, whether there would be any going value. Now I want to ask you if the plant had earned enough to reimburse itself for the cost of real estate would you say the real estate had no value or would you say it affected the value of the real estate?

Objected to as incompetent, as well as ridiculous.

A. Not in any way.

Q. In other words Mr. Baehr will you state whether to your mind going value or that factor or what real estate or any
1547 other factor is worth today is affected by whether or not the company *the company* has been reimbursed for it.

Objected to as incompetent, immaterial and not re-examination.

A. Not in the slightest.

COURT: I will state and see if I am wrong as to what I understand this witness. I understood this witness that this going value is estimated upon the difference between the plant as it now exists or the present value of the difference and one that would be reproduced taking the time necessary to reproduce it covering seven years. That is the way I understand this witness. Whether that is properly speaking going value is another question. Your theory as I understand it is that you are entitled to have added to the reproduction cost this amount?

Q. In your valuation Mr. Baehr, if I understand you correctly you have assumed to measure the going value by what you assume to be the cost of reproducing it?

A. I have.

Q. And you have ascertained that cost of reproducing it by comparing the net returns from the going plant with the net returns from the hypothetical plant during the period of reproducing the business and taking their present worth.

Mr. BYERS: My only objection to that is having counsel state the witness' position and then have the witness assent to it.

A. I have.

Q. In order to make this entirely clear will you please state whether in measuring going value by your method you have taken into account any of the losses which the Des Moines company, the existing company may have incurred in its early history or
1548 prior to this time in building up its business or as Judge Carr suggests very properly in addition to that do you confine your losses on account of operation, do you take into account those which will ensue hereafter in reproducing the present earning capacity?

A. I did not take the early losses into consideration, but approached this problem as an engineer and confined myself to the difference in estimated earnings of the going and comparative plans as indicated, measuring cost of reproducing going value in that way.

Q. Now to digress for a moment, I am not sure whether you testified on your direct examination as to what in your judgment was the proper amount to charge against the operating for depreciation and if not will you state what it is?

A. I believe a fair and a reasonable charge in the case of the Des Moines company is a charge which is computed on the basis of ten cents per thousand cubic feet of gas sold per year.

COURT: I don't get that. I wish you would explain more fully what you mean by that.

A. You don't care for me to go into the entire explanation again how I arrived at that.

COURT: No, just what you mean.

A. Well the Des Moines gas company in the year 1910 sold in Des Moines 525,101,954 cubic feet of gas. Now to determine a proper charge in my judgment for the amount of money to set aside during the year 1910 for depreciation I would reduce that to thousands of cubic feet, namely, 525,101 and then the depreciation would be $52,510.19½.

COURT: That is the money you would want to put at interest for depreciation?

1549 A. Yes, sir; in the year 1910.

Q. Now to indicate perhaps why you do it in that way, I call your attention to Exhibit 16 and ask you to state to the Master whether in the gas business it is customary to figure all of these costs per thousand cubic feet?

Objected to as incompetent and immaterial.

A. It is usual and customary to reduce these matters to per thousand feet of gas.

Q. For instance you have perhaps thirty or forty items there?

A. Yes, sir.

Q. That go into the operating cost here?

A. Yes, sir.

Q. And each one is treated that way?

—. It is.

Q. What do they call this in the business?

A. Usually called per M's.

Q. Or pers.

A. Or pers.

COURT: That means one tenth of the amount of gas goes for depreciation?

A. In a case your honor where the gas is sold at a price of $1.00 per thousand, it would be one tenth. In a case where it is sold for $1.10 per thousand the charge would be ten cents but it would be one eleventh.

COURT: That is without regard to the price of gas?

A. Yes, that is without regard to the price of gas.

Q. Now returning to going value for a little you were asked on your cross examination if the percentage of increase in the business which you estimated for the next four years was not lower that for the immediate preceding four years and I believe you said
1550 that it was.

A. Yes, sir.

Q. If you had made this estimate of the gas to be sold during the period of reproducing the income higher, how would that have affected the result in going value?

A. You are referring now to the time of the development of the going plant?

Q. Well it don't make any difference because both plants must get together.

A. That would result in a somewhat increased going value.

Q. Your attention was also called to the fact and you were asked to make a computation showing that the numercial average of the per cents of increase for four years in the hypothetical plant I believe was 68.92.

Mr. BYERS: The comparative plant in this case?

Mr. GUERNSEY: I would as soon call it that, I mean the same thing. Now if you had assumed that this business had been reproduced less rapidly how would that have affected the ultimate result of your going calculations.

A. That would have resulted in a material increase in the going value.

Q. Now I wish you would turn to your report and tell us how many meters there are installed and using gas in your assumption in the first year?

A. In the year 1911 it is estimated that no——

Q. I mean the first year that you begin to operate?

A. In the year 1913 which is the first year of operation it is estimated that 80 per cent of the meters in District No. 1 only would be installed and 30 per cent of the meters in District No. — on the average and none in District No. 3.

1551 Q. That is in the first year 1913?

A. Yes, that is the average figure as of July 1st.

Q. Can you tell me in meters how many that would be?

A. I would have to figure that.

Q. You can do it in a moment can't you?

A. Yes, sir.

Q. That means in District No. 1, about 7600 meters and in District No. 2, 1870 meters and in District No. 3 none, this being the average number of meters in use in these districts on July 1st of the year 1913.

Q. That was 7600 and 1800?

A. 1870 or a total of 9470. That is not accurate to a decimal.

Q. For the next year where you have such a big increase in percentage, how many additional meters are added?

A. The next year in District No. 1, that is in 1914, it is estimated

that 100 per cent of the meters would be in use or 9501 an increase over the preceding year of 1901 meters. In District No. 2, the number of meters would be about 5000 or an increase of 3130 and in District No. 3, about 2076 where there were none the year before making a total increase of 7100 meters approximately.

Q. And during this same period tell us whether you assumed that the number of meters of the going plant would increase in the same ratio?

A. I certainly assumed that the going plant would increase from year to year the number of meters.

Q. What I want to know is whether it would practically double in a year.

A. Not at all. The increase in the going plant would be very small compared to this.

1552 Q. You were asked some questions on your cross examination which assumed that the income or the net revenue of the going plant last year was $175,000 without taking out depreciations and about 122 or '3 with depreciations out and also included some estimates as to the computations as to what return this would afford on your valuation and was asked this in connection with your determination of going value. Now I wish you would tell the Master what income you assumed to reproduce in measuring this going value?

A. The actual income of the Des Moines Gas Company as of the date of this valuation.

Q. And what is the fact as to whether these are the actual income figures used in making this computation?

A. I did use the actual figures of the Des Moines company as given to me.

Q. And if the income were higher and afforded a higher return on the value of the plant how would that affect your going value generally?

A. Generally it would increase the going value.

Q. You were asked a question on your cross examination as to the use of brick of a poorer quality when these buildings were built than common brick is furnished now. I wish you would state whether in your judgment if the brick used in the buildings had been of a poor quality that would manifest itself in their per cent condition?

Mr. BYERS: That is not a very competent question.

A. I think undoubtedly it would.

Q. And if the brick had been of a poor quality, how would that have affected your estimate of the depreciation which I under — you is based on actual inspection.

1553 A. It would have caused a decrease in my estimate of the present value.

Q. I think at one time during your cross examination Mr. Baehr you stated that you had devoted your entire time up to April 1st, 1909 to the operation and construction of gas plants. Elsewhere you stated you had made quite a number of inspections and valua-

tions of plants prior to that time. Which of these statements is accurate?

A. The statement as I gave it in my qualifications is accurate.

Q. Now you were asked whether Mr. Klumpp had been here checking up and you said you did not know. What did you understand this question to mean?

A. I took it that it was intended to mean or to ask whether Mr. Klumpp was here checking up my report or not.

Q. What if anything has he had to do with your report?

A. He may have seen it, but that is about all, but he has not done anything with it because I did not allow the report to go out of my possession until the day I came to court.

Q. Now you stated in connection with your cross examination that the company furnished you a copy of Exhibit 15 which is the volume of the inventory which contains the quantities and the specifications of the various kinds of material. Please state whether or not you were also furnished with a copy of the other volume, Exhibit 16 or with copies of the plans which are contained in it.

A. I was also furnished with a complete set of blue prints or plans as you call them which are contained in the exhibit referred to.

Q. You have produced here and there have been identified as Exhibits a number of papers containing information relating to the history of this ppant. You also produced a letter that
1554 has been read into the record which gave some figures that were given to the gas company by a contractor stating prices at which he would replace some paving. Now I wish you would describe in just what way you used this information in making your estimates.

A. Such information as that letter referring to cost of restoring pavement, the cost to the company of purchasing cast iron pipe, the cost to the company of specials, cost to the company of laying services I use as one of the factors upon which to base my judgment for the purpose of placing a value on this property. I did not take the exact figures in any instance that I know of. In fact I don't believe I took the figures in a single instance. I used it as one of the factors on which to base my judgment, predicating my judgment very largely upon my experience in the business.

Here the further hearing was adjourned until 9:30 a. m. tomorrow.

1555 Thursday Forenoon Session.

AUGUST 3, 1911, at 9:30 a. m.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

WILLIAM A. BAEHR, re-called for further re-direct examination, examined by Mr. Guernsey, testified as follows:

Q. I wish you would turn to your report, Exhibit 21, immediately following page 149 you stated that you made some adjustments

in the operating cost for 1910 on account of Valley Junction which resulted in reducing the total as shown on this page from .5908 to .5897. Now the total operating as shown on this page, not including taxes and depreciation, is how much in dollars for that year?

A. The total operating expense is as I have shown it not including taxes and depreciation $314,328.77.

Q. Now what would be the difference—what does this difference cost by your adjustment of these matters amount to in dollars?

A. Approximately $2,160.

Q. You have been asked with considerable detail as to various conferences in Chicago and perhaps elsewhere. Now I wish you would state generally, without going into the details of these matters, Mr. Baehr, whether there was any effort made by anyone in those conferences or at any other time to influence or affect your judgment as to the value of this plant?

A. There was not.

Q. Also please state whether in making up your valuation you have acted entirely upon your own judgment as to the fair value of this property?

1556 A. I have.

—. Now, on your cross examination your attention was called to a number of things, all of which you said were considered by you and were of more or less importance in making up the valuation which you reached, or your conclusion as to the value of this plant and including the history of the price of gas in Des Moines, some blue-prints that you have produced here and have been identified as exhibits, the report of the annual gas scales, the holder cost of gas, the gross revenue of the company for a considerable period and its operating expenses for a considerable period, its net earnings, taxes paid by it, its annual gas sales, population of the city of Des Moines, manufacturing cost and consumption by meters. Now aside from the matter of taxes, as to what item of your report were these factors that I have referred to considered by you to be material?

A. Those items I used in connection with the going value calculation.

Q. And aside from taxes, did you use them in any other way in making up your report?

A. I did not.

Q. Or in reaching your conclusion as to value?

A. No.

Q. The taxes you used both in the going value and in the other items?

A. I did.

Q. Now, then, I think you have stated that these things and the other things furnished to you were used by you as checks or guides to your judgment in arriving at your various unit prices or other factors which you used in making up your valuation; is that a fact or not?

A. That is true.

1557 Q. Now, in looking over the transcrip-, I see on page 1392, at the top of the page, referring to the Western United Gas & Electric Company, you say this latter company owns or controls

the property at Elgin, LaGrange, Aurora and Joliet and I think about smaller villages in that neighborhood. Now what was the number of smaller villages you referred to?

A. About twenty.

Q. Now, in the question that begins on the fourth line on page 1409 of the transcript it is said that if several engineers were to deal with this property for the purpose of arriving at a valuation you would want to know before you started where you were all going to end, and you answered "I would think so." I call your attention to this and ask you whether there was any concert, or attempted concert among the engineers as to the value which they were to arrive at?

A. None whatever.

Q. Now at the top of page 1423 I notice this question: "And the history of the price of gas you regarded that as important?" Answer, "I did." On what subject was that important?

A. That was a mistake on my part. I did not consider the history of the price of gas in connection with my calculations.

Q. With reference to cast iron pipes you gave some prices, running four or five years, as you obtained them from the company here. In the first place, is this information that is available from other sources, the price of cast iron pipe?

A. Cast iron pipe—there are market quotations available pretty nearly all the time.

Q. And the prices in the various localities vary with the freight rates?

Objected to on part of defendants as leading.

1558 A. The prices in the various localities vary with the freight rates.

Mr. BYERS: A large part of the examination is simply your statement with the assent of the witness.

Mr. GUERNSEY: I have assumed there was no objection to a question there was no possibility to dispute.

Q. I will change the form of the question then. Now after you had obtained this information, please state whether you took the average price which the company had paid for these five years, or some other price which in your judgment was a fair one to apply to the plant.

A. I took an entirely different price, which in my judgment was the correct one to use in this work.

Q. Now, Mr. Baehr, you have been asked whether as to a great many of these things you regarded them as important in making up your estimate, referring to these matters ascertained from the books of the company as distinguished from your experience in the business. In that connection I would like to ask you of what value in your judgment an estimate would be that was made up from statistics and was not predicated upon actual experience in the gas business?

Objected to on part of defendants as being incompetent, immaterial and not a subject of expert testimony.

A. I would consider such an estimate worthless.

The MASTER: Speaking about pipe here, is that the ordinary cast iron pipe; have you got any standard weight per foot?

A. There is a standard weight per foot for the different sizes gotten up and adopted by the American Gas Light Association and gas companies in ordering cast iron pipe specify usually the stand-
1559 ard of the American Gas Light Association.

The MASTER: What is the standard weight?

A. I can give you that——

The MASTER: Say for six inch?

A. Six inch pipe, standard weight is 30 pounds per lineal foot.

The MASTER: Four inch?

A. Four inch, 19 pounds.

The MASTER: For 8 inch?

A. 42 pounds.

The MASTER: For ten inch?

A. 56 pounds.

The MASTER: For 12 inch?

A. 12 inch is about 72 pounds.

The MASTER: 16 inch?

A. 108 pounds.

The MASTER: 20 inch?

A. 150 pounds.

The MASTER: 24 inch?

A. 203 pounds, as I have it. Now I haven't got the figures in my book of the American Gas Light Association standard and I have deduced those weights by the use of a sliding rule and it may be I am off a fraction of a pound.

The MASTER: These are not the weights you figured?

A. No.

The MASTER: Can you ascertain the excess of pound by taking those figures?

A. I have added two per cent for over-weight. From my experience I have found that cast iron pipe runs two per cent or more overweight of standard.

The MASTER: You figured these as standard?

1560 A. Yes, sir.

Q. Does that include pipe as laid in the main, shoulders and all?

A. It does.

The MASTER:

Q. So that gives how much you allowed per pound; you used it as you give it?

A. Yes, if you add the two per cent.

Q. That is, if those figures—if I understand you—were taken and applied to the inventory, the lengths of the various sizes of pipes as given in the inventory, with two per cent added, how would that compare with your total weight of pipe?

A. That ought to check out exactly or as close, within several decimal points to the weights I have used.

Q. Now, on your cross examination I thought that you emphasized the word actual in talking about the number of brick in a wall. What significance do you give to this in your testimony, how does it differ from the ordinary estimate?

A. Various contractors have various methods of figuring brick work. Some contractors, for instance, figure a wall as solid, without deducting the openings for windows and doors. Other contractors make certain deductions and it is rare that two contractors figure just exactly alike on that subject. Now all my figures are based on actual number of brick, making the most careful computation of the actual number of brick there are and my price that I have used is figured accordingly.

The MASTER: Brick masons double it in turning corners?

A. They have various ways of doing it. I don't know how they all do it. In talking with a number of them I found different methods of calculating and I found it difficult to get them to tell me just what they did do.

The MASTER: You figured counting out openings?

1561 A. Counting out the openings and allowing for projections, etc.

Q. You were asked on your cross examination whether during two or three years of this five years for which you were giving the price of pipe this price was not high. Now this period began when, this five year, for the price of pipe?

A. Beginning with 1906.

Q. Now what effect did the panic of 1907, when we were on a clearing house basis in October, have on the price of pipe?

A. The prices of cast iron pipe were high during 1907 until the latter part of that year when the panic became acute, the prices then began to drop and became low during the succeeding year.

Q. How have they been since then?

A. They have never been as high as they were just prior to the panic.

Q. You spoke about computing the cost of the additions which it would be necessary for the company in your judgment to make to the plant in the near future on a percentage basis, but I think you did not explain what that basis was. Will you please do so.

A. I used the percentage basis in connection with my estimate of mains, services and meters. In my judgment the increase in investment in mains will be about thirty per cent during the next seven years, and I took thirty per cent of my estimate of the reproduction value of these mains as of date of this valuation. Now in connection with the meters and services I estimated that the population would increase during these seven years about twenty per cent—about twenty-three per cent—and I applied this percentage to the estimated cost of the meters and services. In that way I arrived at my estimate.

Recross-examination by Mr. BYERS:

1562 Q. Now, Mr. Baehr, last evening for the first time during your entire examination, and after counsel had stated to you that you figured out the going value in this case on prospective and

future losses, rather than early losses, we reach an understanding of your method. Now was that because you was uncertain yourself as to just how you proceeded, or was it because I did not put the question to you in such a way that you knew what I was trying to get at?

A. I think the difficulty was in arriving at an understanding between you and myself.

Q. You understood me when I was talking about early losses, didn't you?

A. I don't remember what the condition was at that time, Mr. Byers.

Q. Well, now, Mr. Baehr, since Mr. Guernsey told you what your method was in his re-examination, and you assented to it, do you want to take back what is written in your report?

A. No, sir; I want to stand on my report.

Q. Now, what you have written in your report does that square with the method Mr. Guernsey tells you you adopted?

A. If you will kindly call my attention to the portion of the report you refer to, I will see.

Q. I refer to all of the explanatory matter of your report as to how you arrived at the going value.

A. That explanatory matter did not detail my method of estimating going value at all, because I stated clearly in the beginning. at the bottom of page 15 as follows: Now what will it cost to develop the business of the conceptional plant to exactly equal that of the actual going Des Moines Gas Company? The answer to this question is figured in our calculation as herein and we feel the foregoing viewpoint will serve to greatly simplify the principles
1563 that control this question." Now that explanation did not in my opinion, and does not in my opinion explain the method that I used for arriving at my judgment of going value.

Q. Well, then, why didn't you explain it promptly—was it necessary for you to wait until Mr. Guernsey stated it to you before you would tel- us?

A. I tried to answer your questions, as I understood them, Mr. Byers.

Q. I spent a half a day trying to find out from you just what method you pursued in arriving at going value and you at no time mentioned the fact that you proceeded on the theory of future of prospective losses as stated to you by Mr. Guernsey.

A. That must have been due to a misunderstanding on my part, Mr. Byers.

Q. Well, so we have an understanding now. Your whole scheme then of going value in this case and the amount of $509,000 that you have figured out here rests entirely upon your judgment as to what the losses would be in constructing now a gas plant here and operating it over a period of say seven years?

A. You would have to add to that that it is my estimate of what it would cost to reproduce the condition as of January 1, 1911.

Q. I know—I am trying to get away from the cost now, because that is not the word you used and that is not the word Mr. Guernsey

used, and I don't want to be confused about this matter of going value because it is worth something to me to know all about it. Mr. Guernsey used the word losses and I want to know whether that is what you understand your method to show, the losses that would result to the promotor or builder of a comparative or hypothetical gas plant in this city and operate it over a period of seven years?

1564 A. I think I can make that clear to you by stating that the figure I have arrived at is my judgment of what it would cost or what the loss would be to reproduce the business that the Des Moines Gas Company has and is doing as of January 1, 1911.

Q. Well, now you use both terms, which do you mean, losses or cost?

A. I use them in a synonymous sense, as meaning the same thing in that sentence.

Q. How do you apply cost to this $509,000 value that you got into this old plant, how do you get it into the going plant in the shape of cost?

A. It is merely my estimate—I will use the word losses this time because I see that perhaps I have not made myself clear there. It is my estimate of the losses that would be incurred in reproducing the business as of date of this valuation.

Q. Well, then, with that understanding, let me see if I have the right notion of your attitude and your understanding as it relates to this case. Now if you have proceeded on that theory that this $509,000 is the amount of money, or the amount of return on investment that would be lost by a prospective builder of a gas plant in this city and operating it for a period of seven years, beginning with the first day of last January, and does not have any application to any other plant, why then I understand you?

A. Maybe I can express it in still another way that might be of service—put it this way: The revenue of the Des Moines Gas Company was so much on January 1, 1911, and my figure on going value is my judgment of what it would cost to reproduce that.

Q. Yes, in other words, this $509,000 you have said in your testimony numerous times, said it to Mr. Guernsey and to me, that this $509,000 attached to the value of the Des Moines Gas Com-

1565 pany property. Now, if I understand you, that is not what you mean at all—that all you mean is that if a prospective builder or investor was to start out here in Des Moines on the first day of January to reproduce a similar property to this property now being operated by the Des Moines Gas Company, that prospective builder in a period of seven years, as compared to what the Des Moines Gas Company is making, would lose $509,000 and therefore there would be that much in his comparative or prospective plant that would be carried on into its operation beyond the seven years and be a part of that prospective comparative plant's value—that is what you mean, isn't it?

A. I would like to modify that slightly because I consider that the revenue of the Des Moines Company attaches to the property of the Des Moines Company.

Q. Oh, yes; I am not questioning that at all.

The MASTER: What do you mean by revenue, net earnings?

A. The gross revenue in this instance.

Q. I am not questioning that at all, but what I am trying to bring out clearly now—it has not been clear to me, may have been to everybody else—is the fact that so far as you are concerned, your attitude, your plan and method is concerned here, it has nothing whatever to do with the Des Moines Gas Company's experience of losses or their property, except that you have used it as a comparative or a part of your comparative proposition of building a new one, and you have simply used the Des Moines Gas Company's figures, their gross revenues, their net revenue, their operating expenses, their apparatus, the number of miles of mains and meters and services, and all that sort of thing—you have simply used these figures for the purpose of fixing the limit to your new and comparative plant
1566 that is in size, quantity, quality and number and in business, revenue and so on, and then with that as a comparison to your new plant you figured out from your standpoint that a prospective builder would have in his plant at the end of seven years this $509,000 in going value; isn't that exactly what you mean?

A. I have based this calculation on the facts, that is, the business of the Des Moines Gas Company as of the date of this valuation.

Q. Just as I have stated it. You simply used those figures I mentioned of the Des Moines gas property as I mentioned them, you simply used those for the purpose of a limit or plan or specifications and plans for your new plant, and that is all?

A. No, I used that method of calculation to arrive at my estimate of the going value of the actual Des Moines Gas Company.

Q. You do not mean to convey the idea to the court or any of us that this $509,000 is money that the Des Moines Gas Company, or value that the Des Moines Gas Company has put into this plant at some past time or covering some past period—it didn't represent anything of that kind?

A. I mean that is the amount of money it would cost to reproduce the business as of that date.

Q. And that is all you do mean?

A. I further mean it is my judgment of the proper amount.

Q. I know, to go into this comparative plant, but you do not undertake to say to this Master, and all along where you have said so, you would want it modified by your present statement that you know anything about the losses of the Des Moines Gas Company, or how it produced its business or how it got it, or how much money it put in it, or what it cost the Des Moines Gas Company to get this
1567 property, you don't know anything about those things, do you?

A. I haven't got the data on those things, but as I stated before, this amount of going value which in my judgment is fair, is my estimate what it would cost to reproduce the condition.

Q. Exactly, I thoroughly understand you when you put it that way, because that puts an entirely different phase upon the whole

question. Let me put this question to you and see if that don't bring out very clearly what I have in mind: Suppose you had two cities exactly like the present condition in Des Moines, that is, you have two cities with the same population you have in Des Moines, with the same conditions as to education and all that sort of thing, everybody educated up to the use of gas in both cities, they are both exactly similar to Des Moines; now you were going to build a gas plant in one of the cities, and I want you to assume that all other conditions are just alike, freight conditions and climate, seasons and everything else, so that there can be no complication in the property; you commenced on the first day of January, 1911, in one of those cities to build a gas plant; now if you should proceed on the theory that you have figured out here to build your prospective plant and should carry it out and it should work out according to your method and plan, and you put into it the amount of money you have estimated here, and at the end of the seven years you had reached exactly the state you say you do on the paper here, your report, in your plant, would you have then $509,000 of going value in your plant?

A. Yes.

Q. Now, suppose that the other fellow had proceeded to build exactly the same kind of plant that you talk about and he would
1568 get his plant to going in that city and selling gas a year and a half before you did yours; there would be an entirely different situation as to the going value in his case, would there not?

A. That would result in a different figure.

Q. Very different, if he got started a year and a half before you did in the sale of gas and ran seven years as you say your plant run, all other conditions being alike, his going value would be reduced very much, wouldn't it?

A. If I understand you to mean by that that the comparative plant would catch up to the going plant in less than seven years—

Q. We haven't got any going plant here. Here is two cities without any plants. The only comparison is between your new plants; the one fellow has got his going a year and a half before the other, serving the population that uses gas.

A. The basis of this calculation is a comparison between the going plant and the comparative plant.

Q. I mean you have got no plant now.

A. That is a different proposition; if you are starting to develop the business in an entirely new city, that is where there is no gas company—I am trying now to get myself to see just what you have in your mind—and if you assume that there are two such new cities and one develops business faster than the other, without comparing the condition in either of those hypothetical cities with the actual company or actual city, I am not so sure that that would make a material difference in the going value.

Q. Then if I understand you, you cannot have going value unless you have some plant to compare with the one you reconstruct in your mind, is that right?

A. In order to have going value I figure that a company must

be doing business and the entire calculation rests on a com-
1569 parison between a going and a comparative plant based on actual conditions?

Q. Well, this fellow is going a year and a half before you are. Let us take it another way: Here is a city just like Des Moines, conditions all the same, everybody educated up to the use of gas, no difference in any other respect, except that this city I am speaking of now where you are to build your comparative plant, there is no gas company and no gas property in existence, but everything else is there, the same number of people that there is here in Des Moines, and they have the same education as to gas; now here is another city exactly the same in all respects, except that it has a gas plant in operation just exactly like the Des Moines gas plant, in every respect as to mains, apparatus, real estate, service, fixtures and the whole business exactly like the Des Moines Gas Company; now we are just beyond the first day of January, 1911, just at that date; along comes an owner of the Chicago Gas Company and he buys this gas plant in the city where it is operating for exactly $2,000,000 not a cent more, not a cent less; buys it from the owners for exactly $2,000,000. Now on the first day of January 1911, the same date that he buys this plant, you commence the construction of your comparative plant in Des Moines or in this city with the conditions the same as in Des Moines, and the Chicago Company goes right on operating their plant, just exactly the same as this Des Moines Company will go on, as you figured it out, how much going value would the Chicago Company that paid exactly $2,000,000 for their going concern, how much going value would they have in their plant, worked out on your theory?

1570 A. If I understand your proposition correctly, that resolves itself exactly into a comparison between an actual going gas company and the comparative plant as I assumed it.

Q. That is an actual going plant; the other you are building yourself; you are going to build this plant you worked out on paper here, if you work out your scheme just as you got it in your book, when you reach the end of your seven years, on your theory you would have $509,000 going value in your plant; you would have that much according to your theory in your plant, wouldn't you?

A. Yes.

Q. What I am getting at is that would not be putting it in anybody else's plant unless they had exactly the same experience you had.

A. I think that comes right back to the proposition that it is a fair estimate of what it would cost the other fellow to reproduce it.

Q. The other fellow don't have to reproduce; he is running, he has got his plant?

A. But wants to know what it is worth.

Q. He don't. He just paid $2,000,000. He don't have to have anybody tell him what it is worth.

A. I don't see that that resolves itself in a parallel proposition to this at all.

Q. You don't?

A. No, sir.

Q. Well, now, Mr. Baehr, I wish you could, if you would, for a minute get out of your mind the fact that you are a witness for the Des Moines Gas Company case, and that there is any question now of sustaining your theory or anybody else's theory, and just
1571 give me as brief an answer as you can to this one proposition, and that is whether it is not your theory and your understanding and is your own plan and method of figures, that all it has to count for or weigh in this case, is that it is your judgment that if a new plant was constructed here like the Des Moines plant under the plan that your worked out, and covering the period you have stated in your book, that there would be $509,000 of what you call going value in that plant?

A. I don't understand it that way, because I am basing my entire calculations on the conditions of the Des Moines Gas Company.

Q. Well, let's put it another way, Mr. Baehr, if you don't understand it that way: Suppose that at the end of the seven year period, instead of the beginning of it, you had actually gone on and carried out your hypothetical scheme here, where would this $509,000 in value, so far as you are concerned, be in your plant, or the Des Moines plant?

A. In referring to my plant, you mean comparative plant, and further assuming that $509,000 in round numbers was spent in developing the business, if I was asked at the end of the seven year period to place a value on such plant I would figure what it would cost to reproduce it at that time.

Q. No, you wouldn't; you would know exactly what you had put into your property at the end of seven years.

A. Even so, the question that would be put to me would undoubtedly be, what is it worth now.

Q. No, I am taking just the plant you worked out; suppose we were at the other end of that period and you were trying to figure out for this Master, just as you are now, just how much money you had gotten into that plant, what its reproduction cost what that total cost was, covering all those items you mention,
1572 you would state to the Master that it cost in addition to what you paid for pipe and all that sort of thing, this $509,000, and therefore you would say it was worth $509,000 more than just the reproduction cost of the physical property?

A. If the Master asked me what it would cost and that was thamount of money I had spent, I would say yes.

Q. And therefore and because it did that, you would say it was of that value, wouldn't you?

A. No, sir; that is where we don't agree apparently.

Q. Would it be worth more?

A. I have it clearly in mind that the value at that time might be considerably different from what it cost.

Q. Is that so—then what becomes of your plan for use in this case if you haven't figured it out right?

A. I might try and illustrate my idea on the question—supposing I had bought a piece of ground a good many years ago and paid

a thousand dollars for it, and it subsequently rose in value and would be worth five thousand dollars, I wouldn't sell it for a thousand dollars.

Q. Is that the way you mean it might be worth more—you have already tried to figure out to this court and anticipated seven years in the history of this city; you figured out what you think it *it* would cost to reproduce the property like the Des Moines Gas Company?

A. I see where your difficulty is.

Q. You see where your difficulty is?

A. I have reduced those future net earnings to their present worth and it is the estimate as of January 1, 1911. These future earnings have been reduced to their present worth and therefore the $509,000 in round numbers does not result from taking the
1573 actual difference of the actual earnings each year, but it results from the difference of these earnings reduced to their present worth.

Q. That doesn't affect the proposition at all. That simply makes your present figure $509,000, the difference between that and what that would be worth seven years hence. It is the principle I am getting at. You would at the end of seven years, if you were putting a value on your property, all conditions being just as you anticipated, you would work out this going value just as you have in this report, wouldn't you?

A. If you mean to say that I would take cost and use cost, that is one thing, but I didn't do that. Maybe I don't understand you, at least that is what I did not do; I did not use cost, I attempted to place my value on my judgment what it would cost to reproduce it at the time.

Q. I will state it once more, and then I will leave it. I am just as anxious to get it right as I can be, not only for my own account but on yours. I want the record clear. Assume all conditions just as you have anticipated in this computation you have made here as to the comparative plant; assume that it works out just as you figured it; you built the plant, actually built it as you figured it out here; we are at the end of the seventh year instead of at the beginning; leave out of your mind this question of $509,000 as the present going value item, but consider that as the going value at the end of the seventh year, if you were asked to put a value on the plant you have just constructed, upon the plan you set out here in your report, all other conditions being exactly as you anticipated them, what would you tell the Master was the value of your plant?

A. Well, if you predicate the condition that I am to
1574 consider that amount of money as the going value at that time, that seems to me to be the answer.

Q. How is that?

A. In your question, as I understood you, you said to me to consider the going value at the time that you have in mind as being in round numbers $509,000. Now if you are asking me to consider that, that would be the answer.

Q. No, I didn't mean that at all. You have undertaken to figure out the going value of a plant, the construction of which commenced

the first of January, 1911, and you carried your figures up to a period of seven years hence in comparison with the going plant of similar character operating over the same period, and you have arrived at a sum that you say would be the going value—I don't remember what it was as you figured it out before you reduced it to its present value, but letting the question rest upon the figure as you figured it out, without reducing it to its present value, and you are at the end of the seventh year period instead of at the beginning of it, and you work out your scheme just as you state in this report, and the Master at that time was to ask you for the value of your plant on the assumption that everything was just as you anticipate it, what would you tell him was the value of it?

A. I don't believe I can answer the question, Mr. Byers.

The MASTER: You figured first the earnings of this present Des Moines Gas Company up to the end of the seventh year?

A. Yes.

The MASTER: Then you constructed the comparative plant over that same period and figured what its earnings would be during that period under like circumstances?

A. Yes, sir.

1575 The MASTER: And then you ascertain the present value of that?

A. Year by year, yes sir.

The MASTER: And that present value is the difference between the going plant and the comparative plant without regard to the question of whether the going plant is getting a net income or not.

A. It is the net income possibly as you have it in mind that *are* being compared.

The MASTER: The net income is being compared?

A. Yes, sir.

The MASTER: Not the net earnings?

A. I want to be sure, to be perfectly clear on that, I will state as well as I can express myself, just what I mean. We are comparing what I call the net earnings reduced to their present worth, and by net earnings I mean the gross revenue less the operating expenses, less taxes and less depreciation; that is what I call net earnings. Now I am taking the going plant and the comparative plant, I am taking these net earnings year by year and reducing them to their present worth, taking the difference and add the sums of this difference over the period under consideration, seven years, and that sum, in my judgment, represents what it is fairly worth to reproduce the business of the Des Moines Gas Company.

The MASTER: That is to reproduce the business?

A. Yes, sir.

The MASTER: Starting and building a new plant covering that seven years?

A. Yes, sir.

The MASTER: I understood you yesterday you did not take

1576 into consideration the net income of the gas company at all.

A. This whole estimate is based upon a careful study of the gross

income and operating expenses and the net earnings of the Des Moines Gas Company.

The MASTER: That is the difference between the two plants?

A. The two plants are compared on a basis of the net earnings between the two plants; in other words, what a man would make out of them after paying operating expenses and depreciation.

The MASTER: But you don't take into consideration whether or not the present company is earning a reasonable return on its physical value?

A. I am not paying any attention to the rate of the return in this calculation. This is based entirely on the present rate for gas as of January 1, 1911.

Teh MASTER: You do not take into consideration whether or not it is earning what may be termed a reasonable income on its present physical value as you make it?

A. No, because all I am trying to do is to reproduce the condition as it was on the date of my valuation.

Tehe MASTER: It is altogether predicated on what is known as the reproduction idea in getting your valuation?

A. Yes, sir.

Q. Now, I want to put another question. I don't think I misunderstand your positions at all—I don't want to put you in the record in a way that you would not be satisfied with it after you got through with this case. Now let us assume a little different situation than what we have here. Assume, if you will, for the purpose of this question, that the Des Moines Gas Company began its operation in Des Moines seven years ago; assume that all the con-
1577 ditions now necessary to an immediate sale of gas, that is education and a knowledge of the use of all these different gas appliances existing in Des Moines seven years ago; now the Des Moines Gas Company begins its operations on the first day of January, seven years back; just as — commenced to build your new plant, they commenced to build the present in the city of Des Moines; now they have continued down to the end of the seven year period, we will say, the first of last January, they were right at the end of the seven year period; now if you were asked as an expert engineer to take the Des Moines Gas Company as a real thing, just as it existed, and pay no attention to this prospective or future method that you have used here, but if you were asked to fix a value upon the property of the Des Moines Gas Company on the first day of January, after its seven years of operation, basing your valuation upon the actual operation of the plant itself, how would you proceed?

A. I would proceed just exactly as I did.

Q. I say, leave that out of it entirely now, this new method you have used here, just take the actual operation of the plant, take the actual experience, the amount of money put into it and all that sort of thing, if you were asked to ascertain for them just what the property has cost them to produce it during those seven years, would you get any going value in it, and if so, how?

A. I don't believe I could say that I could figure it the way — predicate that.

Q. Wouldn't the actual experience and the actual building of a plant and the actual expending of money, the losses and return and all that apply to a going concern just as well as to a hypothet-
1578 ical proposition?

A. I think you inject another factor there that I have not considered, namely, the rate of return.

Q. You have not considered that at all?

A. No.

Q. I don't care whether you considered it even now, take this actual plant and start back seven years ago, if you did not adopt this reproduction plan of building in the future comparative plant, how would you proceed to ascertain just how much the Des Moines Gas Company had put into its property and upon which a return ought to be based, whether it is a fair one or not?

A. Well, if somebody undertook to assume the responsibility of saying to me what a fair rate of return was, I might be able to base some sort of a study by which to arrive at the losses.

Q. Somebody did undertake to tell you in this case?

A. No, sir.

Q. Why did you use the rate you did use?

A. I didn't use a rate of return in my calculation.

Q. Don't you call interest a return on money?

A. Interest is a return on money, but is not to be confused with a fair return on the investment of a public service corporation.

Q. Didn't you notice in this confidential communication we had trouble with here the other day, that statement, didn't you notice this interest suggestion here "interest during construction" the interest to be allowed during construction of the manufacturing plant and the distribution system of the Des Moines Gas Company consists of such amount as would pay for the use of the money during the time it is employed in the development of the property before the plant itself is on an operating basis, figured at six per cent. Didn't you notice that very clear and definite information as
1579 to return?

A. I did not. I did not pay any attention to that pamphlet, if I may call it so, except the one tabulation which I referred to yesterday giving a statement of the number of meter installations by years.

Q. You have some exact duplicated of it of tables in your report?

A. If there is any duplicate of that in my report I don't know it.

Q. How did you come to use six per cent interest?

A. Because I considered that a fair figure for general interest rates in Des Moines.

Q. By that you mean a fair return on the money in Des Moines?

A. Don't misunderstand me to say that I mean a fair return on money invested in the Des Moines Gas Company.

Q. No, you considered that a fair return on money in Des Moines?

A. I considered that simply as market interest rates.

The MASTER: Did you take into consideration the fact that the taxes were deducted from the real estate, the way you calculated it?

A. I deducted the taxes from the revenue of the company as one of the factors to determine the net earnings, if I understand what you mean.

Q. Well, now, let us get back to our question again. Seven years ago the Des Moines Gas Company commenced to build a plant, and suppose you would follow that progress right down to the first of last January, and in following it you would discover that these different items of added cost, that your judgment convinced you would have to be put into the construction of this prospective or future plant, was only about a third or one fourth as much as you figured, that would reduce the going value of the plant at that time to a
1580 third or one fourth, wouldn't it?

A. I don't know whether our minds are together on this subject or not.

Q. I am afraid not, at least we are not trying to get at the same thing. Let me put it in another way: If the figures could be shown here, showing the construction and operation of the present Des Moines plant, the beginning of it the first of January seven years ago and running over this seven year period, just as you done in your new plant, and you were to figure everything that the company did, all the money it put in, and what it earned and all that, and then at the end of the seven years the result showed that the Des Moines Gas Company from within six months of the time it commenced its construction had received in revenue more than a fair return upon its money, all of it, every dollar, that went into the property it was operating, would that have any effect upon the question of going value as you understand that proposition?

A. I don't believe it would.

Q. All right, we will leave it that way.

The MASTER: There was one matter yesterday, this question of the amount necessary to set aside each year for depreciation you gave as ten cents per thousand cubic feet of gas?

A. Yes.

The MASTER: And the next year it would be ten cents on that?

A. Yes.

The MASTER: It would be ten per cent?

A. At a dollar rate it would be.

The MASTER: Do you know what the composite life of the gas company is estimated at?

A. In the case of the Des Moines Company, I can
1581 & 1582 give you the figure. I had figured the composite life of the Des Moines Gas Company's property, that is, considering the buildings, the apparatus, equipment and distribution system at 37.6 years.

The MASTER: Did you ever figure the amount set apart each year at compound interest for these thirty seven years at six per cent per year and ascertain what it would amount to?

A. I have not, but I have used that same method of figuring in arriving at my estimate of the fair amount to allow; that is I used the compound interest basis in two calculations, or two studies rather

and one study I made on the strength of my basis. I didn't figure the total dollars.

The MASTER: The first year it would be $51,000 and the next year say $55,000, and you take each of those amounts and figure them at compound interest up to the end of 37 years, it would make a pretty good sum of money?

A. I didn't make that calculation, your honor, that way.

The MASTER: It wouldn't take you long to do it?

A. I don't believe you would want me to do it here in court.

The MASTER: You would have to take each year for instance, the first would be 37.6 and the next would be for 36.6 so that you would have different amounts each year and larger amounts each year, as they go into the summary, and that at compound interest of six per cent or five per cent or four per cent, would make a large sum of money?

A. If my figures are correct it ought to take up just about the value of this property.

The MASTER: What rate of interest did you figure?

A. You mean the interest paid on that?

The MASTER: The rate of interest, six per cent?

A. I figured 6.4 per cent for 1911 and then a decreasing
1583 percentage until 1917, my estimate was 4.15; in other words, at a decreasing percentage.

The MASTER: You have one figure there where you put the amount at thirty-three thousand and some odd dollars and another at $38,000.

A. Yes, sir. I have figured on the straight line basis that the amount of money to set aside is $76,352, that is a proper amount on that basis. If you figure the compound interest at four per cent, then I figured the proper amount to set aside each year was $33,359.

The MASTER: From what you term a composite rate?

A. Yes, then that figure is $38,733.

Q. Right at that point there where you start with six and a fraction rate of increase and then gradually run down to four, that had to be done in order to get these two plants together in seven years.

A. No, sir; that is my estimate of what will take place irrespectively.

Q. You had to make that estimate in order to make that scheme work?

A. If I had used a larger per cent it would have resulted in a somewhat greater going value?

Q. If you had used a per cent lower than that what would have been the effect?

A. It would have resulted in a slight decrease.

Q. So that you have to have that sort of a graduated downward scheme in order to make your whole scheme work?

A. It is predicated on judgment based on the facts of the operation expense of the company.

Q. Did you have to make your figures square with the judgment?

1584 A. I certainly had to use my judgment.

Q. If somebody else had to use a different judgment they would not have come out at the same place you did?

A. One of the things about this method of calculation that is perhaps peculiar to it is the fact that if several men who are experienced in the business, who know the business, make calculations entirely apart from each other, they will perhaps naturally and undoubtedly differ some on the estimate of percentages of increase, but as a matter of fact it has been my experience in these calculations under the various assumptions provided they are reasonable assumptions, that the results harmonize very well.

Q. In this case there wasn't very much difference in the result of the engineers after their meetings together?

A. I havn't Mr. Lea's result; I don't know what he testified what was his judgment as to the amount of going value.

Q. There isn't enough difference to take an hour's time in this hearing. You heard him tell what his total- were the other day?

A. My impression is he said about $583,000.

Q. Now, Mr. Baehr, in this state the tax laws among other things provide that a merchant's property, the merchandise of a merchant, such property as is carried up here in the Gas Company's store, stoves and fixtures and lights, and all that sort of thing, is taxable upon the average value of the stock carried during the year, not on the amount on hand at any particular time, but on the average amount carried during the year. The statute further provides that manufacturing properties, the product of the factory, is taxable in the same way, that is, the product of a factory, the average amount

1585 of it, the average value for the year, not for any particular time, and all apparatus which in this case would include the machinery down here, the buildings, the mains, the services and everything, it all is a part of the hook-up, the machine becomes a part of the real estate for the purpose of taxation and is valued as a complete machine; have you proceeded in allowing your tax values on any such theories as that?

A. No, the theory that I have proceeded on is indicated in my report; I have given the detailed figures there.

Q. You figured out your tax proposition on the theory that all property, no matter what it is used for in Iowa or in Des Moines is taxable at two and one-fourth per cent of its actual value, that is the way you proceeded?

A. Yes, but in order to arrive at the taxes I also looked at the actual taxes that the company had paid in the past years, and in tabulating the amounts from year to year I saw that my allowance for taxes increased from year to year. But I predicated it on two and one-fourth full valuation, plus two per cent on gross income, plus federal tax.

Q. How much did you allow for the federal tax?

A. In the year 1911 I estimated that the federal tax the Company pay would be $795.29.

Q. How did you arrive at that?

A. From my going value calculation you will notice I have estimated gross income operating expenses, etc., and I followed the

rule which is laid forth in the federal corporation tax of taking the earnings of the gross income of the company and deducting the operating expenses, deducting taxes and depreciation, and if my memory does not fail me, the bond interest, and from what is left deducted $5,000 and then took one per cent of what is left.

1586 Q. That is the way you arrive at the federal tax?

A. Yes.

Q. You got how much for 1911?

A. I estimated the amount would be $795.29.

Q. Does that amount show in your report right along for each year?

A. Yes, sir, on pages 146 and 146½.

Q. Now, Mr. Guernsey asked you about this conference in Chicago and asked you whether anybody tried to influence your judgment and you said no, that you exercised your own judgment. Was there any difference of opinion among the engineers that met there as to what method ought to be adopted in this case of arriving at valuations?

A. The discussions, Mr. Byers, were a discussion of theories and interchange of ideas, and in my mind the discussion was entirely free from any attempt to influence my figures in any way.

Q. What was it for, what were they there for?

A. We were there I presume to discuss theories and interchange ideas.

Q. About valuation, was that the purpose of this meeting?

A. It was more on theories.

Q. I mean theories of arriving at valuations?

A. I would prefer to answer a question like that as applied to specific things.

Q. Who, at the first meeting of the engineers, first proposed the method of arriving at going value that you and Mr. Lea have adopted?

A. My recollection is there was no discussion of any kind at the meeting you mention about this going value method; that is my recollection.

Q. What did Mr. Alvord say about it?

1587 A. Mr. Alvord was not there, according to my recollection.

Q. You told me the other day he was?

A. Not at the first meeting; Mr. Alvord was, I believe, at one of the subsequent meetings.

Q. It was at that meeting he gave his theory and notion about this going value proposition?

A. We discussed the principles of going value with Mr. Alvord.

Q. You knew Mr. Alvord had advanced this same theory of arriving at going value that you and Mr. Lea had worked out before he was called in, didn't you?

A. I don't — how far before that I knew it or not.

Q. He told you himself that he had used that method or substantially that method here in the water case in this city?

A. I understood that he had used it in the water case and had been working on that for some time.

Q. Well, now, Mr. Haganagh was at one of those meetings?

A. For a very short time.

Q. He had just made up a report on the Chicago Gas Company, hadn't he, for the city of Chicago?

A. I don't know whether that report was made up at that time or not, but he had made up a report this year.

Q. That is, he completed it some time this year?

A. At least it was published.

Q. Now at this meeting he gave his views about the method and theory of fixing valuations on gas properties?

A. I don't think Mr. Haganagh did, as I recall it, if he came in at all he was in for only a very few minutes.

Q. Did he talk at all about valuations?

A. Not to my recollection.

Q. Mr. Klump gave his notion about it?

1588 A. I don't remember that we discussed what you call valuation. I don't know what you mean by that unless you mean the entire valuation. I don't believe we discussed that.

Q. I mean these theories, you talked about the theory at which you arrived at the so-called added costs, weren't those the things that were the subject of a conference?

A. There was probably some interchange of opinion on the principles of these matters.

Q. That is what the conference was for?

A. I presume it was arranged with the idea that any of us could derive benefit from the interchange of opinions.

Q. When you say there was nothing done there, nobody attempted to influence your judgment, all you mean is there was no one tried to force you to arrive at a particular conclusion?

A. I think the meetings were entirely free from any coercion of any kind, either direct or implied.

Q. Certainly, but they were both called and held for the purpose of exchanging views on this theory of added valuations to gas property, and those are the things you talked about?

A. Well, we discussed principles and interchanged ideas, but I must repeat as far as my figures were concerned, there was not the slightest influence brought to bear on me.

Q. Now at this conference, not only the engineers who were present, but counsel gave their ideas too about these theories of added values?

A. I presume counsel joined in the discussion.

Q. Now, Mr. Baehr, you say that you took the actual number of brick down here in these buildings?

A. As shown in the inventory.

Q. That is the fact?

1589 A. Yes, sir, as shown in the inventory.

Q. You don't mean by that answer you yourself had measured those buildings and ascertained the number of bricks; you simply took the measurements Mr. Brodnax made and his figures as to the actual number of brick?

A. As I believe I stated, I actually checked one or two buildings by very careful calculation to see that the quantities of brick were correct.

Q. You mean if their measurements were correct?

A. No, sir; I actually checked one or two buildings through for the quantities.

Q. How did you get at it?

A. I got the cubic contents of the wall and multiplied by the number of brick per foot.

Q. He used 22, didn't he?

A. I don't know what he used. I estimated mine on the basis of 20 brick and I got so close to his figure that I found it substantially correct.

Q. His figure I know was more than 20, but that was not ascertained by actual measurements in the building but is somebody's rule?

A. No, sir; I figured that out myself; bricks are various sizes- —

Q. That is the reason I don't know how you could do it by rule.

A. I got the sizes of brick from local manufacturers. If you were reproducing these buildings here you would have to use brick supplied by local manufacturers.

Q. So your figures have no reference to the invoice as to the identical brick down here?

A. Indeed they do have.

Q. I thought you took the size of the brick as they are made now?

A. You referred at that time to the rule for estimating the
1590 number of brick per cubic foot. I was going on to say for various sizes of bricks the number is determined per cubic foot, knowing the size of the brick and allowing proper space for joints.

Q. What would the size of the brick, if you were going to reproduce the plant, you would use the same size of brick down here wouldn't you?

A. That wouldn't make any difference in the value of the buildings.

Q. Would it make any difference in the number of brick. I don't care about the value of the buildings.

A. If you had bricks twice as large of course.

Q. Suppose they were an inch larger each way, what effect would that have?

A. That would reduce the number of brick.

Q. In adding thirty per cent to the present reproduction cost new of mains for the needs of the next seven years, did you add thirty per cent of the mains with paving?

A. Yes, sir.

Q. That is to say, in your figures this thirty per cent of extensions of mains you have also added thirty per cent to the cost of paving on the theory that those mains would all be laid after the paving was down rather than before?

A. I took thirty per cent of the total reproduction value of mains as I had figured it, estimating that would be the increase in investment in the mains.

Q. Did you do the same thing on services?

A. On services, yes.

Q. So those amounts and values are included in your figures of thirty per cent for increased cost over this period for extension of mains and services?
A. They are.

1591 Redirect examination by Mr. GUERNSEY:

Q. I wish you would state so as to make it clear whether your assumption was all new mains would be under paving or whether it was not?
A. My assumption was not specific in that matter; my assumption was the total investment would be so much. I based it on the percentage method, I based on no specific assumption as regards paving.

Recross-examination by Mr. BYERS:

Q. Do you know of any reason why this Exhibit 8 should have been refused us the other evening?

Mr. GUERNSEY: We object to this question and if counsel wants to know why it was refused, I refused it.

Q. Do you know of any reason why this Exhibit 8 should not have been delivered to us promptly the other evening?
A. I don't know anything about Exhibit 8.
Q. Is there anything in it you know of which in any manner affects your testimony or anything that you have included in your report in the way of valuations that you do not want us to know?
A. It is just as I stated, I glanced through it; I haven't the faintest idea what is in it except the meter tabulation I referred to.
Q. So that you do not understand why counsel insisted that we must get an order from the court?
A. I do not.

Mr. GUERNSEY:

Q. You also do not understand why counsel concluded that they would insist?
1592 A. I don't know anything about it at all.

Excused.

WILLIAM W. RANDOLPH, being first duly sworn on part of complainant, examined by N. T. Guernsey, Esq., testified as follows:

Q. Your name is William W. Randolph?
A. Yes, sir.
Q. What is your avocation?
A. Consulting engineer.
Q. Where are you located?
A. 165 Broadway, New York.
Q. Have you specialized as to any particular business that comes within your profession, if so, what?
A. I have specialized in connection with the gas industry.
Q. I wish you would state in a general way what experience you

have had in designing, contracting and operating gas plants and distribution systems and the apparatus used in them, and also in a general way what experience you had with reference to the valuations of such plants?

A. You want me to begin a brief historical——

Q. Give an outline of your engineering experience.

A. My experience in the gas business began about three years after I graduated from Stephens Institute of Technology. In 1889

1593 I went to work for the Gas Company at Kansas City. At that time I was employed in the design and construction of an electric light plant. From Kansas City I went into the employ of the United Gas Improvement Company. While working for them which covered a period of probably between three and four years, I was in the various departments from constructing various kinds of gas apparatus, both in their own plants and a number of outside properties, to being second in charge of engineering and the construction department of the Philadelphia office. In that position I designed a construction and operation in many cases of the various properties in which they were interested both as constructors and as operating them, came within the scope of my department, the department in which I worked. About 1894, I resigned my position with the United Gas Improvement Company and went with the firm of Humphreys & Glasgow Consulting and Constructing engineers, having offices in London and New York. My experience with them covered a period from 1894 up to January 1st, 1910. And during that period I was in charge of the engineering and examination of properties, operation of properties with which they were interested and actively connected, with both buying and selling and operating gas and electric companies.

Q. Through what territory?

A. My experience pretty well covered generally the larger towns I think in the east and middle west, and one or two in the far west.

Q. Was this firm of Humphreys & Glasgow engaged in the manufacture or selling any apparatus?

A. Their specialty was water gas apparatus; the apparatus that I have heard described in court here.

1594 Q. Now after you opened your own office about January 1, 1910, since you opened your own office, what business have you been engaged in?

A. I have followed the same line of work for myself that I followed for the firm and Company of Humphreys & Glasgow.

Q. Have you made a valuation of the property of the Des Moines Gas Company, complainant, in the city of Des Moines which it uses here in its business of manufacturing and distributing gas?

A. Yes.

Q. Now, I wish you would state somewhat in detail what you have done in the way of examining the property and examining the conditions in Des Moines and things of that character in order to aid you in making this valuation?

A. I first received what purported to be a schedule of the physical property of the company; that schedule I took with me to Des Moines and used it in checking up the apparatus that the company

has in its gas plant, visiting the property and examining the various pieces of apparatus; the various buildings enumerated in the schedule and identifying the same. I also familiarized myself fully as possible with local conditions relating to the company's business.

Q. What do you mean by familiarizing yourself with local conditions—please state whether you done anything with reference to familiarizing yourself with local prices or anything of that kind to effect the valuation?

A. In general by that I mean to cover familiarizing myself with local prices of materials and supplies in Des Moines and looking through the records of the company to familiarize myself with prices paid in Des Moines.

1595 Q. Have you prepared a memorandum which summarizes the results of your conclusions as to the valuation of this plant?

A. Yes, sir.

Q. Is this paper which is marked Complainant's Exhibit 22 the memoranda to which you just refer?

A. Yes.

Q. Now turning to page 22 of the report—before I ask you any question with reference to the buildings there referred to will you state in a general way what method you adopted in valuing this property and why?

A. In all of my values given here, all of my values given here are based upon the theory of reproducing the physical property as of the time of this examination December 31, 1910.

Q. Why did you adopt that theory?

A. Because that is a period in which the investigation is being made and I am advised by counsel that is the period and date that the valuation is desired as of, and you have to take some date in order to produce definite figures.

Q. I don't think you understood what I have in mind. What I wanted to get at was why in making this valuation you adopted what you call the reproduction theory?

A. I thought you were getting at the date. The reproduction theory is one of several that have been considered at different times: the cost of the property is one method if that can be obtained; that is very difficult to ascertain, and in this case I do not think the records would have permitted it, and if I had the time to go through their detailed——

The defendants object to this statement of the witness as incompetent and a statement of a conclusion so far as it pertains to the condition of the records of the company.

1596 Answer continued:—The reproduction theory represents to my mind the best method of ascertaining the fair value of a piece of property of this kind as of the present time. There are certain things that have market value and you can go into the open market and ascertain them. There are other things you have to measure by some comparison, because there is no ready market value for them. You might take as an example cast iron pipe, or wheat or any commodity in which the price per bushel or ton can be ascer-

tained as of a certain time and certain place; that would to my mind be the measure of its value at that time. Take something else for instance, you might take a portrait or painting the value of that painting could not be determined very well because a private party might place a sentimental value upon it.

Q. In a case of that kind one method that would appeal to me would be to go back to the original cost, or rather to go back to the cost—take an artist of equal talent with the artist that produced that product, and see what it would cost in the element of time or service to reproduce it. I don't know that I can answer your question very clearly. Those are the various elements it seems to me make the reproduction value one of the stringest upon which we can base our judgment as to the value of the property.

Q. Can you tell me Mr. Randolph about how long you have been using this reproduction method as a method for obtaining the value of properties of this character?

A. I don't think I can tell you exactly how long; ever since I can remember doing any work in this line I have been working upon reproduction, when no other measure was available. In many cases in the past there have been other measures in the purchase of gas companies available.

1597 Q. Can you tell me in a general way whether this method has been in use generally among gas engineers for say fifteen or twenty years?

A. Yes, I think the reproduction method has been for that length of period given very material weight by engineers.

Q. You referred to a list of physical property, a description of it furnished you by the company. Was that what we call Exhibits 15 and 16, the inventory?

A. No, I was furnished something very much like that, but was not exactly the Exhibit that is in the case. Since I have been here this last time I have borrowed a copy of the exhibits from Judge Carr and have compared the exhibit that was given me with that to see that it was substantially the same.

Q. That is what I wanted to get at, whether the list of property which was furnished to you was substantially the list of the property shown in the two exhibits 15 and 16 constituting the inventory?

A. Yes.

Q. Now, returning to these buildings, take the first building here, the purifying house, as an illustration and explain to the Master what you did in your effort to value it?

A. I examined the description and the drawings and made sufficient measurements on the building to satisfy myself that the details in the description were substantially correct. Having ascertained that fact I calculated the quantities of material in the buildings, using the drawings as a basis of my calculation, not in as great a detail as the company had developed theirs, but by *usi* using some shorter cuts and different methods I arrived at the ultimate price. I converted the excavation into cubic feet and put a price per foot on it. The brick work into cubic feet and put a price per foot on

1598 that. The brick work I think in most cases I figured solid and added for windows and doors, if there was anything to

be added for that item. The item of roof from a consideration of the drawing and inspection of the building on the ground, I would place a unit price on the roof as a whole per square foot, going through the building in that detail would produce a certain set of figures which approximated in my judgment the cost of reproducing that particular building. The same process was used in regard to each one of the buildings. I grouped as much as I could those things together as a whole, using as few items to put prices on as I conveniently could.

Q. Now you have referred to unit prices in your answer. I wish you would state now generally whether in each instance the unit prices which you took or the prices of labor or material which you adopted or of apparatus or anything else that went into this plant, was in your judgment the fair, reasonable price for the article in question to be used for the purposes of a valuation of this plant as of January 1, 1911.

Objected to on part of the defendants as incompetent, immaterial and the witness is not shown to be competent to answer it.

A. It was.

Q. Now, Mr. Randolph, did you have any experience in connection with the buildings, the character of the buildings that are involved in this plant?

A. I have.

Q. For how long a time?

A. Covering a period of 18 or 20 years probably.

Q. What is the fact as to whether that experience has gone to designing construction and supervising construction?

A. It has.

1599 Q. How general has that been in the localities of the United States?

A. It has covered a very considerable territory, covered those points in the state of Massachusetts, North Carolina, Alabama, Pennsylvania——

Q. Did you get any further west than Pennsylvania?

A. Kansas City. I could enumerate a good many places.

Q. I do not care to have you enumerate them all. Did you make any special investigation as to these matters locally in Des Moines?

A. Yes, I found that the company's representatives had accumulated considerable data on the subject, and from local contractors and other sources as to the costs of material, the cost of labor, etc., that I saw, and I also conferred with two of the contractors that furnished that data, checking up first hand their ideas as to the correctness of the figures that I saw tabulated.

Q. And are those statements true generally as to all the items that go into your estimate. I don't want to ask you about each one unless counsel insist on it. That is, as to your knowledge and experience and checking up as to local conditions if there were any local conditions.

A. I have endeavored in each case to make my experience conform to local conditions.

Q. And you have experience as to each of those matters that is involved?

A. Yes.

Q. Now, I will ask you again whether the unit prices adopted by you and the prices for labor and material, for apparatus and the prices for all the various items that go to make up this property which you valued, as they have been used by you were fair,

1600 just and reasonable for the valuation as of January 1, 1911.

Objected to on part of the defendants as incompetent, immaterial and the witness not having been shown to be competent to cover these general features, and it already having developed by the examination of this witness that as to a large number of items his knowledge is based entirely upon hearsay.

A. In my opinion they are.

At this time an adjournment was taken until 1:30 P. M.

1601 1:30 P. M. THURSDAY, *August* 31, 1911.

WILLIAM W. RANDOLPH, being continued on direct examination by N. T. Guernsey, Esq., testified as follows:

Q. Mr. Randolph will you please state what in your judgment is the estimated cost new of the building we have been referring to, the purifier house?

Objected to as incompetent, the witness is not competent.

A. $10,500.

Q. Under this building I see in parenthesis a statement, pages 16 to 24 inclusive. What do these pages refer to?

A. On the first page of this statement you will find a note which says the following page and sketch references are to pages Exhibit 15 and sketches of Exhibit 16 found in complainant's Exhibits 15 and 16.

Q. So that refers to these exhibits with reference to these buildings here?

A. Yes, sir.

Q. That amount $10,500 which you call estimated cost new is what we have been calling the cost of reproduction?

Objected to as a statement of counsel and not an in inquiry, incompetent and immaterial.

A. Yes, sir.

Q. Now proceeding will you please state whether or not this Exhibit 22 shows as to each of the buildings the estimated cost new or reproduction cost?

A. It does.

Q. And please state whether these amounts as you have

1602 given them here are in your judgment fair and reasonable?

Objected to as incompetent, irrelevant and immaterial, the witness has not been shown competent to make such general answers to general questions.

A. In my judgment the prices stated here are fair and reasonable.

Q. The total of the estimated cost new of the buildings is in your opinion what?

Same objection.

A. $93,960.

Q. I notice just preceding that two items yard paving and fence. Please state whether or not they are included in this total.

A. They are, both items of yard paving and fence are included.

Q. Now you have another column in these pages two to 5 inclusive of Exhibit 22, which is estimated physical decay. Will you please state what you have covered in that column?

A. By estimated physical decay I meant to define as specifically as I could the depreciation I take into consideration there. That is the amount that if you could do it, would be required to put that building into as good condition as new.

Q. Now how do you arrive at these amounts?

A. By inspection of the buildings and placing an estimated depreciation on the elements in the building that were depreciable.

Q. Now I notice in boiler house station and generator house on page 3 and in carpenter shop barrel oil house pump house, oil pump house and meter house on page 4, there is nothing in this column opposite the items that have been referred to. What does that indicate?

A. I didn't notice anything on those buildings that I thought was depreciated or decayed.

1603 Q. What does the amount, $8,282 in the last line of page 5, where the figures appear represent?

A. It represents my judgment of the amount of physical decay as previously explained that exists today or at the time of my inspection which was practically the same as of December 31, 1910, exists in the buildings described in those pages.

Q. As we have these totals page 5, $93,960 estimated cost new and $8,282 estimated physical decay, will you please state whether they are carried into any summary and if so where we shall find this summary?

A. On page 1 of the statement you will find buildings page 5, of this appraisal estimated cost new $93,960 estimated physical decay $8,282.

Q. Now what general items do you next take up?

A. The items of machinery and apparatus in the plant.

Q. And do they appear under the head of machinery beginning with page 6?

A. Yes, sir.

Q. Now please state whether you have estimated the cost new of each piece of apparatus or machinery which you have specified in your report on pages 6 to 12 inclusive except where you have grouped several items and whether you have in these cases estimated cost new of the items so grouped?

A. They are to be taken together and the estimate is as of reproduction new. There are two or three items in here which I did not produce the original detail figures, but took figures which after look-

ing over them commended themselves to my judgment. One of these was the item of furniture and fixtures in the west side office, meter and fitting shop shown on pages 239 to 243 of the com-
1604 pany's schedule. That I took largely from the company's inventory, that is from the company's I don't mean inventory, but from the company's costs. I think the same is true of tools and the same is true of stable equipment. That was taken from an estimate made by the company which in looking over it, it looked to me reasonable.

Q. Aside from the items which you have mentioned I wish you would state whether the estimated cost new, as it appears under the heading machinery in Exhibit 22, is as to the various items there set out your judgment of what would be a fair and reasonable cost for the item in question if the plant were to be reproduced as of January 1, 1911.

Objected to as incompetent, irrelevant, the witness not having been shown to be competent.

A. It is.

Q. And what does the column estimated physical decay as to these matters of machinery and apparatus cover?

A. That represents the state or that represents the amount of money which in my judgment would be required to be expended on those pieces of machinery if it were possible to put them into as good condition as new.

Q. And what is the total amount of the estimated new cost of machinery?

A. The total amount as found on page 12 and as total machinery $534,058. This is transferred to the summary of totals on page 1 the same amount.

Q. And what is your total estimated physical decay?

A. $84,710 which is also transferred to page 1 in the summary.

Q. You say that also appears on page 1 of Exhibit 22?

A. Page 1, yes.

1605 Q. What is the next matter which you took up?

A. The distribution system, first taking up the mains, street mains.

Q. I notice that you have the mains here subdivided under the various sizes two and one half inch and under up to 24 inches with the number of feet of each size of main. State in a general way how you arrived at your estimate of the cost of the reproducing of the distribution system, that is the mains that form part of the distribution system first.

A. The company gave me the schedule showing the lineal feet of mains that they own. That I accepted as correct. That schedule showed the lineal feet of mains in use November 1st. To the extent that they have added to the mains between November 1st and December 31st, I find I have made an omission. In other words my figures here do not include additions to the plant from November 1st to December 31st. I examined the conditions that existed in Des Moines as to soil, general conditions of the streets, etc., that you

had to contend with. I had an opportunity to study the company's description of the conditions that existed here, I took occasion to discuss with the people who were most in contact with the distribution system, the conditions that existed, the condition in which *th* the main was found upon examination. I saw very little of the distribution system proper myself, because since I have been here comparatively few streets have been open. Those streets that were open that I knew of, I made it my business to make an inspection or to verify as far as possible my origial judgment.

Q. Now then you say where a street was opened you made
1606 it your business to make an inspection. What sort of an inspection did you make, what did you do?

A. I examined the nature of the soil, nature of the street covering, got down in the trench and examined the pipe to see whether it was as stated to me, the nature and condition.

Q. Now what did you find as to the condition of the mains as far as you examined them?

A. As far as I examined them myself I found them to be good.

Q. What in your opinion is the estimated cost new of the mains that is what in your judgment *is what* would be the reasonable fair cost of reproducing the mains which are a part of this system?

Objected to as incompetent and the witness is not shown to be competent.

A. $1,227,612.

Q. What did you do with reference to services, that is did you ascertain what their value was in your judgment?

A. Yes, I pussued the same general method as to services. I had access to all of the company's records that I wanted to go into and I used both on the mains and on the services that data to check up my judgment with.

Q. And as to house services as they existed on the first of November, 1910?

A. I assumed that the number of services given me were correct and my judgment of the fair value new, fair cost of reproducing new was $—.

Mr. BYERS: Wait a minute please. If that answer is to go in I want an objection to it. I don't understand counsel has asked that question *yes*, however.

Q. What in your judgment is the reasonable actual cost of
1607 reproducing the house services that you have referred to?

Objected to as incompetent, no proper foundation having been laid for the inquiry and the witness is not shown to be competent.

A. Total services $393,647.

Q. These services are what? What do you mean by a house service?

A. They are the physical connection between the gas main and the gas meter.

Q. Above or below ground?

A. Below ground, wrought iron pipes in most cases in fittings

running from the main in the streets to the inside wall of the house.

Q. To what extent is it physically possible to make an inspection of the services without digging up the pipe?

A. It is impossible to inspect the underground work without digging up the pipe.

Q. What proportion of it is under ground?

A. All of it except possibly something that might be in areaways exposed pipes, small sections, but it is under the street or under the paving or under the lawn.

Q. Turning a moment to mains, you said you had been given some information about them and that you had attempted by taking all of the opportunities of which you knew while you were here to verify this by examining the mains themselves where they were exposed for any purpose. So far as your examination of the mains went, pleases state whether or not it tended to confirm the information that had been given to you with reference to them or their condition.

Objected to as incompetent and immaterial.

A. Yes, sir. In every case before I went to examine an
1608 opening of a main I made inquiry of people that I thought were best posted on that particular subject and then when I got there I examined the conditions as stated by them and got a check in a way on their judgment on other matters to see whether we agreed on that particular subject.

Q. Who was the person whom you have referred to as best posted you talked to about this?

A. One of the persons was Mr. Vincent, another was Mr. Henry Moul.

Q. Now your next item here is what?

A. Lamp services and posts.

Q. And what in your opinion is the reasonable cost of reproducing this item as of the date we have mentioned.

Objected to as incompetent, the witness not having shown his competency and no proper foundation laid for the inquiry.

A. $23,256 which is carried forward to page 1,—no that is not carried forward, it is the total.

Q. Your next item is meters in use. Explain what you did with reference to meters.

A. I made no attempt to ascertain whether these meters were or were not in use, accepted the company's inventory having questioned them as fully as I could as to the method of arriving at that inventory and having placed a value after having gotten the information in that way.

Q. And what in your judgment is the actual reasonable cost of reproducing these meters as of the time referred to.

Objected to as incompetent, the witness not having shown his competency.

A $240,057.

1609 Q. What is the next item?

A. Meters in stock.

Q. What in your judgment is the actual reasonable value of these meters as of the date referred to?

Same objection.

A. $7,924.

Q. Now you have against this distribution system under your column estimated physical decay the amount $189,249. I wish you would state what that is and how you arrived at it?

A. That is 10 per cent of the estimated cost new and represents my judgment of the amount that would be required if it were possible to put these mains, meters and services in to condition as good as new, that would *respote* them.

Q. Can you explain to the Master how you arrived at this amount?

A. Well only partially. It is largely the result of experience taken in connection with what I can learn locally of the condition of the several parts taking them up in detail. The mains for example I have been unable as I stated to examine those mains except in a very few instances to determine what the present state of the case is but that pipe that I have examined has not shown any appreciable decay and I have examined pipe as near as I could get from the best posted men here up to 45 or so years old. That indicated no physical decay on pipe itself. Then you take into consideration the condition of the mains as shown by the unaccounted for gas or leakage as it is commonly called, the condition that exists as regards electrolysis which I inquired into very carefully and so far as I could learn there is no appreciable amount of electrolysis that has taken place in the gas mains. An *ex*-examination of the soil would

1610 tend to confirm in my mind the fact that the electrolysis would not take place very rapidly here, conditions appear to be more or less favorable, the pipe that I examined myself don't show any signs of it. I made no critical examination to determine how much current the mains may or may not have been carrying. Taking these elements into consideration and also my past experience with mains I have formed an opinion that there was not much depreciation that really existed there. Now as to house services in some cases I have seen services here that were twenty-five years old that were good. The actual condition of these services in real *use* I don't know but that in a way again is reflected in the leakage account. If the services were in very bad condition, deranged badly, you would naturally expect to find the leakage high. The same line of inquiry made as regards mains was made as regards services and an effort was made by me to reach as near as I could the actual physical decay by these people in daily contact with the mains and services. As regards meters I was shown a sheet that gave the so-called age of the meters. So many meters, I have forgotten the years, between 1886 it began with and ran on down by years. That I had before me in a way to represent the length of time that they had been operating a certain number of meters and I also had access to the records of the company which showed the number of meters *if* different sizes that have been renewed and condemned and re-

paired and the number that have been removed. I knew from observation of the number of meters in the store room, repair shop here, what the general methods of taking care of meters were, satisfied myself that they were well taken care of and from data
1611 of that kind I arrived at the conclusion as to depreciation of meters, while apparent age would be gotten by multiplying the number of years that a certain number of meters were said to be in use by the number of years that had elapsed between that period and the present and averaging that might show a pretty long period of use or it might not still the meters themselves are frequently gone over. It would be difficult to say from my examination so far just how often every meter is examined, but I noticed in the past five years from 40 to 45 thousand meters have been taken out and taken to the repair shop. Of that probably four or five thousand have been actually repaired and condemned, when a meter is condemned a new takes its place so that is renewed in toto in effect. Then 40 to 45 thousand total meters that have come back to the shop, they are gone over and tested each time before they are sent out and if they are not in good condition as represented by tests then they are sent off to be repaired. From consideration of all that class of information I have formed my judgment on meters and while it might be if you attempted to differentiate there, there might be more than ten per cent on one item and less than 10 per cent on the other still on the whole it seemed to me that ten per cent was a reasonable figure for depreciation that exists up to the present time irrespective of the age. That seemed to me to be as good as any other judgment I could arrive at for depreciation.

Q. Now are the tota-s of this page 13 carried by you into this summary on page 1?

A. Yes, sir.

Q. The next item in this summary is land value $240,000.

1612 *Q.* How did you get your value of the real estate?

A. I assumed a value taken from the company's figures that were given to me and since I have been here I have noted in the testimony the valuation put on the land by some of the experts that have already appeared and that tended to confirm the value that I previously assumed so that the original assumption I left stand.

Q. You don't claim to be an expert on real estate values in Des Moines I assume?

A. No.

Q. What in your judgment is a fair and reasonable amount of the item that we have been referring to as working capital?

A. $160,000.

Q. Tell us how you arrived at that if you please?

A. From a consideration of the different elements that go in to make up the amount of money tied up in the company's business, the stocks of material, outstanding gas, cash required to operate the business.

Q. What do you mean by outstanding gas?

A. Uncollected gas, gas made and the expense of making the thing past as far as manufacture goes but money not yet received or collected.

Q. Now what in your judgment is the amount which should be allowed on account of the item that we have been designating as going value?

Objected to as incompetent, immaterial, the question is based upon an assumption that is not in the testimony of this witness.

A. That element in going value which is represented by the cost to develop the sales of gas from zero to the present, to the
1613 present—to the amount that they were selling as of December 31, 1910, which exceeded $510,000 in my judgment was five hundred thousand dollars.

Q. You said the amount they were selling, I guess you stated what you intended to, did you intend to state in dollars or feet?

A. I meant to state in feet.

Q. How many feet?

A. 510 million feet.

Q. Now will you please explain to the Master fully and in your own way how you got at that?

A. It is a problem that I hardly feel able to explain in detail the processes, but it is the result of my experience and the conclusion I reached based on all of the elements that I take into consideration that enter into the problem of what it would cost after you have gotten a developed plant to develop sales from nothing to the present volume of sales. That may not be at all convincing to the Master's mind or to any one else's, but it is difficult for me to analyze my mental processes or to bring up and say in detail how I arrived at an opinion or conclusion of that kind. The various measures that have in the past been put on that each and all have some merit and are worthy of some consideration. The method of placing a certain amount per consumer gotten as representing the expense applied to the individual consumer, you would find some examples of that in the company's present method of doing business. They have a new business department which cost them a definite amount to operate. They will in a given period make certain expenditures for the development of new business and the result of that *are* shown in
1614 the increased number of consumers that they take on. Roughly speaking as I recollect the figures the year 1910 sho-ed an increase in consumers and by consumers we will say that a meter represents a consumer, an increase of meters of about 1300. The cost of the new business account showed about $24,000. Now all of that new business is not entirely due to the expenditures of the company in its efforts there. Some of it accrues to it by reason of the natural growth of the town. You might say that—it would be purely an assumption, but I recall looking up the population in 1900 and 1910 and I thought that the probable rate of growth was at least 2000 per annum. If you make an assumption of that kind estimating five people to the family you would get about 400 consumers that would come to you from the natural growth of your city. That would leave a balance of 900 that would accrue to you from the business department. Assume roughly that there was a thousand that the new business department obtained, that would give you approximately $24.00 as the expenditure of the com-

pany during the past year for such new business and new customers as they acquired. Now that is just one example. I don't know that there is any particular conclusion to be drawn from that, but it is just given as an example. You will find in other cities that the same thing can be adduced which will result in different figures, sometimes more or sometimes less per consumer. And from that kind of experience some engineers have taken as a basis so much per meter connected which as I said before has some merit and is worthy of some consideration. The cost of developing your business will depend largely upon the assumptions that would make in your estimate, length of time that you take to get your business and
1615 fair rate of return is involved in that because it is not only the direct cost that you spend in getting business such as is reflected in the accounts as kept by the company now, but it is the loss of interest, loss of the fair return upon your dollar invested from the time that the plant is completed and ready to begin delivering gas up to the time that the period is reached when you are selling the full output of the plant taking at the time at which this valuation is made. I don't know that I could explain—I could talk a long time on the subject, but I don't know that I could tell the court any more clearly exactly how I arrived at it than by mentioning those various elements.

COURT: Practically the same method as these other gentlemen?

A. No, I have not gone through any such process of computation at all. As I see it, it is an opinion estimate, opinion as a result of all considerations. That is the only method I know. I know that is used by competent engineers, it is used in water cases, it is used in gas cases, has been used recently in gas cases. That I have not compiled myself but I had the benefit of knowing what those figures resulted in, what those computations resulted in.

COURT: You had the benefit of that?

A. I had the benefit of that. I heard that testimony in court.

Q. When did you first learn what the going value computations of Mr. Lea and Mr. Baehr had resulted in?

A. When I heard them in court.

Q. When you heard them testify?

A. I did not in every case hear them, but when I speak of hearing I either heard them in here or was told about them after they were on the stand, because I was not in court every day.

Q. You as I understand it did not follow that method at all?
1616 A. No.

Q. What in your judgment Mr. Randolph was the total estimated cost now or the actual reasonable cost of reproducing the property of the complainant, the Des Moines Gas Co., used and useful by it in its business of manufacturing and distributing gas in the city of Des Moines as of January 1, 1911?

Objected to as incompetent, and the witness not having been shown to be competent, no proper foundation laid for the testimony.

A. $3,420,514.

Q. And what at the same time was in your judgment the amount which should be deducted from the amount you have just stated

on account of physical decay or depreciation in order to get the actual reasonable value of the property referred to at that time.

Same objection.

A. That question calls for an answer which does not seem to me quite right, what I mean by those figures.

Q. Tell us then in your own way what you mean by those figures. What I want to get at is as near as I can the actual reasonable value of the property January 1, 1911, in your opinion?

Objected to for the same reasons as the former question.

A. What I mean by estimated physical decay there or perhaps to my mind what is in the valuation appraisal there is to represent the amount that the property has depreciated in value due to physical decay and to represent a sum of money which will have to be put back into the property from some source in some way to make it fully up to the cost new. Now that does not represent that the plant in my mind is depreciative so far as operating efficiency is concerned. It is good as far as the public—it has got as far
1617 as the public is concerned 100 per cent efficiency. The fair rate of return, the amount upon which you should get a fair rate of return in my opinion is the first column or as new and not the depreciative cost. For that reason I say that I could not answer your question directly because you charge off of the cost new the depreciation. If you want to get at my opinion how it should be used I had to go into that explanation.

COURT: Should be the cost new less $500,000?

A. I think the $500,000 stands in the same class with the other elements in there. The $500,000 is part of the expenditures in one form or another that the company has made to complete its plant and complete its business, to build this plant and acquire this business and that from the cost new so long as the company has to maintain and does maintain its plant that you should not depreciate for the purpose of determining the fair return. The fair return should be once you invest a dollar you should get your fair return on that from the time the dollar is invested until it is returned to you in some form if at the end of your existence you should have acquired a sinking fund there to return your original investment. If you are going to keep on indefinitely then that sinking fund does not necessarily have to be prepared. If you started and invested your dollar in the first instance if you later come along and put a depreciation of 50 per cent upon that because of its present condition, then you have depreciated that original dollar invested 50 per cent and won't get a fair return only on one half of what you originally put in and I still have to maintain my plant and am going to maintain it. Therefore, I think the value new is
1618 the basis for the return in the case of this particular company. I have made some inquiry as to what the depreciation they have written off or they have charged up before this amounted to. I have not taken this directly from the books, I have been advised that the surplus the company now has and the depre-

ciation that it has written off within the past two or three years exceeds materiall- the amount of physical decay that I think exists there today.

COURT: You would not allow anything or you would not charge off anything annually for physical decay upon that principle.

A. Upon this principle I would not charge off, I would keep my investment intact. I do not judge the depreciation over future years by the exact amount of physical decay that is represented there today and that I find exists because I don't know how many years, I can't tell without more detailed examination than I have made how many years that decay has been accumulating. The company has been in existence here for a great many years, but it may have renewed and maintained, it has maintained in various ways its plant and that represents to my mind the amount of decay that exists. Now when you come to deal with the future, that is another problem. I don't feel I am bound by that figure in dealing with the future. I feel that there I have got to exercise my best judgment in the physical decay that is represented at the present time. I can't go through and look at it, but I can estimate in the mains but like a building I can go through and see how much decay has taken place and it is immaterial to me whether that building is one year old or a hundred years old so far as I am concerned if it is there of useful design and adopted to the purposes of its use at the time I make the examination. The age has no bearing whatever on it. Now when you are dealing with the
1619 future you have got another situation there. You take into consideration another set of problems. But when you come to say what is the physical condition of the property now, my contention is that all you have got to do is to get that account by looking at it irrespective of age. If a man tells you a building is fo-ty years old, the building is there and I can look at it. The same is true of everything else. You can tell me mains are a hundred years old, but I have got to get some ther evidence additional to that before I can determine what the present condition of those mains are.

Q. Did you make an estimate Mr. Randolph, I don't know whether you did or not as to the amount which should be charged off annually or charged to the operating expenses annually in the future on account of depreciation of this property either in dollars or in cents per thousand.

A. I have not yet Mr. Guernsey. I have got the elements to use in forming that judgment, but if you desire to go into that detail with me I will have to take a little time to consider this and bring them togethe- before I would want to give you an opinion on that subject.

Q. Then we will pass that for the present. Now Mr. Randolph what can you say in a general way as to whether this plant is adapted to the requirements and the services which are demanded of it here in the city of Des Moines?

A. I have examined the plant and my opinion is that it *as* adapted to the purposes of its use.

Q. What is your judgment as to its adequacy, as to whether overbuil- aand things like that?

A. Well in some respects it is a little underbuilt I guess.
1620 The holder capacity is getting pretty close to the limit where they will need more capacity there. They have far exceed- the day's output—that is in the day's output they have far exceeded the holder capacity. The other elements that c-me into *into* the main part of the manufacturing plant are not overbuilt I don't think. Take the generating capacity you have there five units. One of those units alone at the present time can maintain the output of the plant if everything is all right. You are very close to the period in your future history probably where one machine alone will not. Now take another combination you have got two other units smaller, the two 8 foot six sets which combined will do as much as the one ten foot six set I have just referred to. Then as a spare you have the old six foot sets which by themselves you would be unable to produce enough gas to supply the demand here in the maximum condition but they are useful up to the point that you can throw them into use in the case of an emergency. So taking all these things into consideration the generating plant is not overbuilt.

COURT: I see you have got on page 11 2 8 foot 6 sets at $29,760 and one *t0* foot 6 foot set at $21,380. What is the difference in the co-t?

A. Water gas apparatus is not bought on its capacity alone. Two 8 foot six sets, you will note that these water gas sets include an additional item there of *s*cubber, that is one more item than the third set has got, that ends at the washer. Then they are an entirely different size and they result in a figure which is not necessarily and directly proportional to the output of the machine. The capacity of these machines var*y* from the rating, given one capacity with one kind of fuel and another capacity with another kind of fuel.

1621 COURT: I just wondered why the larger one cost less than the smaller one that is all?

A. The larger you go under certain lines and capacity the more efficient the machine is from the view of investment. It will turn out a larger amount of product for a given investment, per unit of invest*j*ent you get a larger return in output. It costs less per unit of output that is one reason why the small units are not built to go into a very large plant.

Q. Did you make any estimate as to what expenditures will be required in the plant here in the near future in the way of additions?

A. I did some estimates on that but I have not got them in completed form for use now because I didn't know that that was going to come up.

Mr. GUERNSEY: We offer complainant's Exhibit No. 22 in evidence.

Objected to as inco*n*petent, irrelevant, no sufficient or proper foundatio*j* laid for its introduction.

Cross-examination by Hon. H. W. BYERS:

Q. How much of your experience during the years since 1889 has been as operator of gas plants?

A. It would be very difficult for me to say in percentage of time. From 1896 on I think I have been pretty intimately connected with the operation of plants.

Q. And at different localities in the country difference points throughout the *company,* or has your experience been largely in one place during that time?

A. No, my experience has been in different localities.

Q. From Kansas City on the west and south on east to the
1622 Atlantic coast?

A. Well no I never had any definite experience in the operation in Kansas City since the period I spoke of. I am referring to the period after I left Kansas City.

Q. You left Kansas City in the 90's?

A. I probably left Kansas City in the 90's.

Q. And during the years say since you left Kansas City and up until the time you opened your present office in New York City did you own any gas properties?

A. I have owned stock in gas companies.

Q. I will come to that later. Have you owned and operated any gas plants on your own account during these years?

A. I have operated in an advisory capacity plants that I have been interested in, but as I say stockholder.

Q. How recently have you been *superiving* the operation of a gas plant in which you had a financial interest?

A. Why I suppose for eleven years.

Q. And you still are occupying that relation to the same plant?

A. I am consulting engineer for the same plant.

Q. You have a financial interest in the plant?

A. Yes, I am interested in some of their preferred stock.

Q. Now how many gas plants do you have stock in at this time?

A. I don't think I have got stock in any of it.

Q. Is it hard for you to settle that in your own mind?

A. Yes, because I have got several cats and dogs of stock that I am not sure whether I have let them go or not, it has been so long ago that I saw them.

Q. I am speaking of gas properties, not any other property?

A. That is the kind of stock I am talking about too.

Q. Do you think of more than one concern that is in oper-
1623 ation now and in which you have financial interest whether by stock or what it is?

A. Yes, there is probably two that I am interested in.

Q. If I remember your examination, I didn't take very careful note of it, you opened your present office in New York City within the recent year?

A. Within a year and a half, January 1, 1910.

Q. Prior to that time you were an employé of the Humphries and what is the other name?

A. Humphries & Glasgow up to the October a year before I left

them I was in the employ of a firm called Humphries & Glasgow, but for the following year I was vice president and also in the employ of the same company but continued as an incorporated company, concern.

Q. Now Mr. Humphries of that concern, what relation does he bear to any gas properties that you know of?

A. Well I really don't know what his relationship or companies are now.

Q. When you were with the United Gas & Improvement Company did he have any relation to that company?

A. He was the general superintendent — company *of* that time.

Q. And what relation did his firm bear to that company?

A. They were in the position of competitors.

Q. Weren't they consulting engineers, wasn't the firm acting frequently as consulting engineers for the United Gas Improvement Company?

A. No.

Q. At no time while you were with them?

A. No, I think as near as I can recall there were probably two or three minor pieces of work that the United Gas Improvement
1624 consulted us for.

Q. Mr. Humphries is president at this time of the Buffalo Gas Company isn't he?

A. Yes, sir. I answer yes, I don't know whether he is or not.

Q. Do you have any present employment with the United Gas Improvement Company?

A. No, sir.

Q. You say you have no employment now?

A. No.

Q. Where was the last employment you had with them?

A. I think it was in 1894.

Q. Now since you opened your office in New York City in what way have you occupied your time?

A. In consulting work.

Q. How much of the time since you opened your office in New York have you occupied in fixing values upon gas properties, furnishing information for the purpose of arriving at values if any, or advising with respect to the value.

A. I have devoted considerable time to that work but I don't remember just what percentage.

Q. How many cases do you have on at this moment?

A. You are getting into personal work that I don't know whether I have to answer or not. I don't want to go into my private business.

Q. No, I will not press you for the particular places at all, but just the number and it is proper for me to do that to test your relationship to this case and as it might affect the weight of your testimony here.

COURT: He says he don't want to know the names of the company.

Q. (Question read.)

1625 A. Two.

Q. Not counting the Des Moines case?

A. Yes, counting the Des Moines Company.

Q. One other besides the Des Moines?

A. One other besides the Des Moines.

Q. Now how many in a general way, without going into details, similar cases have you handled since you opened your office in New York?

A. Do you mean by that similar to this?

Q. Cases where your employment was similar to what it is here?

A. Employment before a court?

Q. Well not necessarily before a court, but in making up and estimating values either before courts or commissions or for investors or for gas companies.

A. For any purpose you mean?

Q. For any purpose, yes. How many in a general way without going into details, similar cases have you handled since you opened your office in New York?

A. I should say half a dozen or so.

Q. Were any of these matters within very recent months?

A. Yes, sir.

Q. Have you occupied any of your time during the period since you opened your office in New York in doing this class of work for municipalities or cities?

A. No.

Q. You specialize along gas lines as a gas engineer?

A. Yes, sir.

Q. In fact you are making that your life work now as I understand you?

1626 A. Well I have made that my life work for a good many years you might say.

Q. Gas engineer as distinguished from other kinds of engineering?

A. You might put it this way that my engineering experience has been divided for twenty years along the lines of gas and electric light and street railway property.

Q. Now has that been in fising values upon their property largely?

A. That has been in a comparatively small way in—it has been to a considerable extent in fixing values upon property.

Q. Well is fixing values upon gas property your specialty now?

A. No.

Q. Have you had any other kind of employment for gas companies recently than fixing values?

A. Yes, sir.

Q. Along what lines?

A. Along the lines of advising as to operation, design of plant operation of plant.

Q. These several instances that you answered a few moments ago were confined to valuation cases were they?

A. It was a general proposition. No, you made it general.

Q. Yes, I made it general and your answer was general?

A. I answered it generally.

Q. Were you ever in Des Moines before last January?
A. Yes, I was in Des Moines in the early 90's, I can't recall exactly the year now.
Q. Did you stay any time?
A. I think I was here for several months.
Q. And what were you engaged — here at that time?
A. At that time I was assisting Mr. Pratt the manager of
1627 the plant in a fuel gas trial he was making.
Q. You were here when the company had a law suit and trial in 1895 were you not?
A. No.
Q. And in 1892?
A. No. I have not been here in connection — any other work than what I have just stated to you until I came this last year.
Q. When you were here in 1894 what was your work?
A. Well I didn't say I was here in 1894. My recollection is not perfectly clear, I would have to refer to some further data to know exactly when I was here. The only time I was here before was in connection with this fuel gas experiment that Mr. Pratt was conducting and that was either in 1890 or '92, I don't recall which.
Q. It is not so important about the time as it is what you were doing. You were assisting Mr. Pratt in that experiment.
A. Yes, sir.
Q. And you were here as an employé of the United Gas Improvement Company?
A. I think I was at that time. I was assigned to Mr. Pratt, but whether I was on Mr. Pratt's pay roll or not, I don't know. That was immaterial and I was in effect in the employ of the United Gas Improvement Company.
Q. Now were you ever here after that time again until last January?
A. I think not.
Q. And how long were you here last January?
A. I don't think I was here in January. I will have to refer to my memorandum, I assume you wish to know when I was here.
Q. Yes, I do.
A. I came here on February, Monday the 13th, Monday
1628 morning the 13th and I left Wednesday night the 15th of February.
Q. 1911?
A. 1911.
Q. How did you come to come here at that time?
A. I came here to make the appraisal I have just completed, start the appraisal I have just completed.
Q. I know, but in response to somebody's request?
A. Yes, sir.
Q. Who requested you and when?
A. The date I do not recall and I think it was the secretary of the Des Moines Gas Company.
Q. Was it by letter or how?
A. I am not sure now. I had several communications on the subject I think the first one was by telephone.

Q. Don't you have a memorandum of that date?
A. No.
Q. I mean when you received your first or had your first communication with respect to valuing this property?
A. I may be able to get back to it, but I have no data here that would enable me to do so.
Q. It was however, before the 13th of February?
A. It was early in February. It was some time between the 13th as I recollect it and the first of February.
Q. That you first received a communication?
A. That I received any communication in regard to the appraisal of the Des Moines company.
Q. And you came on and was here then three days in February?
A. I was here two days in February, the 13th and 14th of February.
Q. Then when did you return again? I will sho-ten it up by asking you how long you were here altogether prior to the open-
1629 ing of this trial?
A. I was again in Des Moines coming on Sunday the morning of the 12th, no Thursday morning March the 9th and I left Monday night the 13th.
Q. From the 9th to the 13th?
A. From the 9th to the 13th and I was away from here one day at that time, Saturday I was out of Des Moines.
Q. Well we will call it all here from the 9th to the 13th, four days. Now when again if at all before the trial of this case?
A. At no time.
Q. So that altogether since your first communication from the gas company asking you to come here you have not been in Des Moines to exceed 12 days?
A. Whatever that time results in. It was two days the first time.
Q. It is not near that much, but I made it large enough so you would not have any question about it. Ten or twelve days at the outside?
A. Yes, sir.
Q. Now while you were here the first time who did you see?
A. I saw Mr. Haines, Mr. Vincent.
Q. Mr. Haines is the president of the company?
A. Yes, sir.
Q. And who is Mr. Vincent?
A. Mr. Vincent is the engineer of the Des Moines Gas Company. And I saw employés under them. I saw some of the contractors in town.
Q. Who of the contractors do you remember you saw?
A. Mr. Brereton is one name.
Q. He is the man that built some of these buildings down here?
A. I think so. I am not sure about the other name, seems to me it was Mardis.
1630 Q. Yes, there is a contractor Mardis here. Now any others?
A. No, no other contractors at that time.
Q. Well any other persons whether contractors or not?

A. Oh I saw a good many persons here.

Q. I mean connected with this business of course?

A. I saw the employés of the company.

Q. You stated that I think. I mean now any other person that had any relation to this company or to your figures?

A. Upon either of these trips?

Q. Yes; put it on either.

A. At either time, there were upon one of these trips I don't recall now which, I think it was the last one, several of the men that I see in Des Moines today that were not there the first trip that were connected with the inventory in some shape or form.

Q. Mr. Lea, did you see him?

A. No, I didn't see Mr. Lea. I didn't see Mr. Lea or Mr. Baehr here. I saw Mr. Brodnax I think and——

Q. Klumpp?

A. Mr. Klumpp.

Q. Douthert?

A. Mr. Douthert was here yes. And there were a number of men here at the time, I don't know as I can call all their names.

Q. Well in connection with this matter, they were here in connection with this matter?

A. They were here in connection with the case in some capacity or other.

Q. Now Mr. Brereton furnished you with information with respect to what he received for building some of these buildings down here didn't he?

1631 A. No, I didn't ask him any question along that line.

Q. You didn't have that matter up with him at all.

A. No, I had up the question with him of the cost of materials and cost of labor that entered into that class of work in Des Moines and under the conditions that existed here.

Q. You didn't want to know about what his contract called for under which he constructed these buildings?

A. Yes, I would have been very glad to know it but I would still——

Q. He was right there, why was not that inquiry made of him?

A. Because if he had a contract his contract would not enlighten me at all except as to the total figure, it would not eliminate the detail at all or enable me to form judgment upon which I could reproduce more or less in quantity than was covered by the specific contract that he had.

Q. But if he had a contract there under which he had built one of these buildings, there would have been absolute positive information with respect to this particular building anyway wouldn't it?

A. That would have been the total cost of that particular building.

Q. Yes, the total cost. Well now since you did not inquire about that we will pass that for the time. You have given me now so far as you remember the persons that you met here and talked with with respect to this property?

A. I think so.

Q. On any of your trips?

A. There were a number of assistants here with Mr. Klumpp and Mr. Brodnax that I might have met but they were——

Q. Well they were outside probably of the business con-
1632 nected with the company, they were not important in this matter that we are inquiring about?

A. I don't think it is material.

Q. That is all I want is the parties who had something to do with these values. Now were you present at any of the conferences at Chicago.

A. I was present at one meeting in Chicago.

Q. Who was there with you at that time?

A. I think the three attorneys for the company that are present were there, Mr. Douthert, Mr. Lea, Mr. Baehr, Mr. Klumpp, Mr. Heminger, Mr. Brodnax, and I think that pretty nearly covers the list.

Q. Was Exhibit 15 and 16 there, or copies of it?

A. I will have to see the Exhibit.

Q. Exhibit 15, you say you will have to see it?

A. I will have to look it over to see whether I have any recollection of it.

Q. You ought to know all about that, you have got them in your report haven't you.

A. You have my report, if you can discover it in there, it is there but not otherwise.

Q. Well didn't you put it in there or is this report made up recently?

A. Oh, I thought you were referring to some other exhibit. Yes, they had the exhibits, they had Exhibits 15 and 16, which were the descriptive matter prepared and the graphical matter prepared.

Q. And that meeting was early in February, wasn't it?

A. That is my recollection.

Q. Now what other papers, documents or figures did they have there at that time?

A. Why to my knowledge I don't know. I didn't go into
1633 any figures at that time with them and I don't know what they may or may not have had.

Q. You saw other papers and documents?

A. I saw all the papers and documents but I didn't examine them, I don't know what they were.

Q. They had blue prints there and maps?

A. They had some blue prints as I recollect it at that time.

Q. Maps?

A. I don't know whether they had maps or not, they may have.

Q. And wasn't there discussion there about *cirve* sheets, tables and so on and figures?

A. As I recall the discussion it hinged very largely on the inventories, in the first place they were discussing as to how the inventories were made up and whether they were of such nature to enable a man, an expert to use them and place valuations on them without going into too much detail himself, discussion of that character was part of it.

Q. Didn't Mr. Baehr and Mr. Lea and Mr. Brodnax tell you that they had gone over the inventory carefully and checked it all up and taken measurements to test the accuracy of the invoice and all that sort of thing?

A. Mr. Brodnax did, Mr. Lea did not.

Q. Didn't Mr. Baehr?

A. No.

Q. He had been here long before that?

A. If so, he did not make a confident of him.

Q. He didn't mention it. Now did any of these gentlemen that were as you remember it furnish any studies of life and age and methods of figuring and so on?

A. I recall some discussion with reference to depreciation.

1634 Q. Who started that discussion, who was the person who opened up the subject as you remember?

A. I would not like to say who started it.

Q. You would not like to say?

A. What I mean by that, I have not any reason for not saying if I recollect it, but I don't just remember who did start it.

Q. Was it Mr. Kulmpp?

A. I don't remember.

COURT: I expect it was some of these lawyers, wasn't it?

A. They usually start a discussion.

Q. Was it Mr. Klumpp?

A. I don't think Mr. Klumpp started the discussion, as I recollect it; Mr. Klumpp was rather quiet at that meeting.

Q. Have you ever seen Exhibit 8. Was he the only quiet one? I will withdraw that, I don't care to turn this into any matter that is not entirely serious. Just notice that, that is called Exhibit 8, did you ever see that before, that Exhibit 8 or a copy of it or the original of it?

A. The first two pages I have never seen before. The third page looks a little familiar there where it talks about contingencies and omissions. I think I have seen from pages 3 to 16. I would not state that positively because my examination of it was purely of a cursory or critical nature.

Q. That is all right, but if you did see them when did you first see them?

A. I am not sure as to the time. It might have been at the Chicago meeting and might have been at a later meeting.

Q. Let me see if I can't refresh your recollection. Don't you remember of hearing that Exhibit 8 substantially as it appears there read at that conference?

1635 A. I certainly do not.

Q. You say you think that you may have seen it at that conference, these pages?

A. Yes, sir.

Q. Now let us know the fact about it, where did you see them, when the first?

A. I have to my best recollection.

Q. Wasn't it that meeting?

A. I am not sure, I think more than probable.

Q. If it was not that meeting, where did you see it?
A. I was not its keeper.
Q. I didn't ask you that.
A. I saw it in Des Moines, I told you that.
Q. How often?
A. Probably once.
Q. When?
A. At the same period.
Q. What time?
A. I don't recollect the day or hour.
Q. Was it when you first came to Des Moines?
A. It was the second time I came to Des Moines.
Q. And that would be in March?
A. That would be in March.
Q. Was that before or after the Chicago meeting?
A. That was after the Chicago meeting.
Q. Then if you saw it in Chicago you remember now of having seen it at least twice?
A. If I saw it in Chicago, I have seen it twice. If I did not, I have seen it once.
Q. When did you finish your report?
1636 A. I have had it in the rough for, I don't remember that, probably a month or so.
Q. That is not what I asked you, when did you finish it, the one introduced here as Exhibit 22.
A. I had this typed up within the past two or three days.
Q. You have had it typed up since the testimony of Mr. Lea?
A. Yes, sir.
Q. And since the direct examination of Mr. Baehr?
A. Yes, sir.
Q. At these conferences in Chicago was there some discussion about theories and methods of arriving at the valuation of gas properties?
A. Yes, I think there was.
Q. Did you take part in them?
A. I think occasionally I did.
Q. Do you remember the discussion about the so-called element of value in property, going value?
A. That was a subject brought up.
Q. Was that discussed there among the engineers that were present and the attorneys?
A. I think the subject was talked over.
Q. And you took part in it yourself?
A. No, I think I was principally a listener.
Q. Well, did you talk some about it?
A. No, I don't think I talked anything about it because I was not familiar with it.
Q. Didn't you give your view of it?
A. No, I don't think I did.
Q. So up to that time you were not familiar with that element of value of a gas property.

1637 A. No.

Q. Your experience with respect to that commenced about the time of that conference didn't it?

A. That was the first time that I had noted that method or theory of arriving at going value.

Q. That fact is, isn't it Mr. Randolph, that you have been a witness a number of times and you have also prepared numerous reports in which you never entered or suggested any such thing as going value, isn't that so?

A. I never used that term going value, but the first thing of the kind that I can recall going into a case of this kind is much talk about the going concern and going concern value and all that sort of thing and there were opinions that were arrived at which appears to me to cover the same element but the term going value was a new name and they had tak*ing* a method of computing it which was new to me.

Q. Didn't you tell them so at that meeting?

A. To that extent I may have commented on it.

Q. And didn't Mr. Lea at that meeting give his views about this item of going value and what was the proper method of figuring it out?

A. I don't remember what Mr. Lea said.

Q. Or Mr. Baehr?

A. I don't remember either of them.

Q. And didn't some of the other gentlemen there state the method that has been adopted here by Mr. Baehr and Mr. Lea as being the right method and the one that ought to be persued in this case.

A. In the discussion do you mean?

Q. Yes, in the general discussion that took place there.

1638 A. No, I don't recall anybody pointing out that this, that or the other should be specifically used in this case.

Q. You say that was not said and done in that meeting?

A. I have no recollection of it.

Q. What was said in that meeting about these items that have been testified to here and called added costs by Mr. Baehr in his report, he calls them items 1, 2 and 3, and then taces and interest, were those items discussed there in that meeting?

A. I don't think they were as I recollect it discussed in detail. They might have been in inquiring of each man what his method was, his method may have been suggested, but it does not come back to me that any—in any way that I can answer definitely your question.

Q. Do you know Mr. Charles C. Brown, of Chicago?

A. No.

Q. You don't remember ever hearing his name do you?

A. I may have heard his name, but I don't know him.

Q. You remember such a person being at that conference?

A. Not while I was present.

Q. Well were you present all the time?

A. I don't think I was all the time.

Q. Where was the meeting that you attended?

A. It was at the Blackstone.

Q. You know Mr. Alvord? Don't you?
A. No.
Q. Was there a man by the name of Alvord present?
A. Not while I was there.
Q. Do you know Mr. Williams, a gas engineer.
A. What are his initials, I know several Williamses.
Q. Benezet Williams?
1639 A. Connected with the Chicago People's Gas Light Co.?
Q. I don't know what his business is, who he is connected with, a water works engineer the boys say?
A. Not that Williams I don't know.
Q. Do you know Col. Pratt?
A. Yes, sir.
Q. Was he present at that meeting?
A. No.
Q. At no meeting you attended in Chicago?
A. No.
Q. Now as to these so-called added costs, taxes and interest and items one, two and three, have you given them in your valuation?
A. Not in that sort of detail. I have an element in there for what is commonly termed overhead charges.
Q. What is included in the term overhead charges as you understand it?
A. As I understand it, it is the elements of interest during construction, taxes during construction, organization, engineering.
Q. Have you got those items in your report?
A. Yes, sir. I have not got them separated, I have them—they are all included in the figures given here. They are not shown separately.
Q. Have you any memorandum anywhere that shows the amount that you have added to the reproduction cost of the physical property?
A. Yes, I can tell you that. In every item of the buildings, machinery, distribution system and land value there is included an item of 20 per cent for overhead charges.
Q. You have lumped it at 20 per cent.
1640 A. I have lumped it altogether at 20 per cent.
Q. Now I will be obliged to you Mr. Randolph if you will give us the value or rather I will change that, the reproduction cost of the physical property itself free from any added items of overhead charges that you arrived at.
A. That is just a question of computation on the figures for I have got 20 per cent overhead charge included in here and these items divided by 1.20 would give you the result.
Q. It is just a question of taking of 20 per cent of the value.
A. Just a question of taking off 20 per cent.
COURT: Here you have tar extractors $1,200. The original net construction cost as Mr. Lea calls it would be a $1,000.
A. Yes, sir.
Q. Does that cover distribution system too?
A Yes, sir.

Q. You added 20 per cent to the physical valuation of the distribution system?

A. Yes, sir.

Q. For these overhead charges? Now what did you add for paving?

A. I added an estimated cost of paving which included in the first cost, I mean before the 20 per cent went on. The 20 per cent went on to the paving just as it went on to the mains.

Q. If we take your report, the figures as they appear there, and take 20 per cent off of the amount you have set over to distribution system and then 20 per cent on that?

A. No, it is the cost of the given item, let us use it as in this——

Q. I want to know how can you ascertain it from your report, how can you work it out, the paving I am talking about?

1641 A. You can't work the paving out of course, no way you can tell how much I have got in that for paving.

Q. Now you have had as you say a great amount of experience, you own now stock in gas companies, one or two at least I wish you would give us the benefit of your information as to the lowest price that you remember of just now that gas is being manufactured and sold for, and the kind of gas manufactured in this plant?

Objected to as not cross-examination, but no objection to the making the witness their witness on these matters.

A. You mean the general rates to private consumers?

Q. No, I don't mean general rates, I mean the lowest rate that gas such as is made here is furnished to consumers anywhere in the country where you are acquainted.

A. That is a very variable proposition, and——

Q. It is only one rate, it is not variable, it is just the lowest one you can think of?

A. It is hard to get at the lowest rate because they often allow special rates to special large consumers.

Q. I don't mean that.

A. It is difficult to duplicate in your mind the exact conditions existing here. These are particular conditions peculiar to Des Moines.

Q. I am not asking that at all.

A. I am going to try to answer you as fully as I can, not going to try to side step the question. The question of illuminating power comes in the value of the gas that is to be distributed got to balance that up in your mind and know whether you are comparing them alike and also take cities of equal size I should say.

1642 Q. I am not asking anything of that kind, simply asking without reference to comparison to give me the lowest price that you have in your mind now that gas such as is manufactured here is being sold?

A. That it has been sold this year, was during the past year?

Q. Yes.

A. I think 70 cents at Cleveland is as low a figure as I happen to have in mind.

Q. That is the lowest one you think of?

A. That was 70 cents, but now I come to think of it, it was raised to 80 cents.

Q. Is there any other place you think of 70 cents?

A. There are probably some places, but I don't recall them.

Q. Now what is the highest rate that you know of that you have in your mind just now for such gas as is made here?

Mr. GUERNSEY: You mean the same candle power or water gas?

Mr. BYERS: No I mean water gas, the same kind of gas manufactured here, I mean the same kind of gas made here.

A. There are places probably that sell gas as high as $2.00, possibly more, but I have not anything specific in my mind that would exceed probably $1.25 or something like that, possibly $1.50. Most places are mixed gas propositions, have both coal and water gas, a different set of conditions. This place is water gas alone.

Q. Does the difference in candle power have much of anything to do with the cost of gas?

A. Yes, it enters into it, is an element of the cost of manufacture it does not have so much to do with the price at which it is always sold.

Q. Take for instance the difference between 22 and 17
1643 candle power in Des Moines would that make any difference in the cost of manufacture?

A. Yes, it will make a difference in the cost.

Q. What per cent?

A. It will add to the cost of manufacture.

Q. How much?

A. I am not prepared to state that off hand.

Q. Well just give your best judgment?

A. That is a difference of five candle power. This is a very rough proposition, but probably nearly three cents.

Q. Is that a difference in the fuel or in the oil?

A. Practically in the additional oil that is required for bringing the candle power up.

Q. That is if there is a difference in the cost it is due largely to the difference in the amount of oil necessary.

A. That is the principal element in the cost of added candle power.

Q. You figure the difference would be something like a half a cent to the candle power?

A. Somewhere between a half cent and three quarters of a cent, possibly three quarters of a cent would be nearer the average than half a cent would.

Here the further hearing was adjourned until 9:30 A. M. tomorrow.

1644 Friday Forenoon Session.

AUGUST 4, 1911—at 9:30 A. M.

Counsel for the respective parties all present.

Testimony on part of complainant resumed as follows:

WILLIAM W. RANDOLPH, recalled for further cross examination, examined by Mr. Byers, testified as follows:

Q. Mr. Randolph, in your examination in chief yesterday, you stated there were several methods of ascertaining the value of gas properties. What, briefly, did you have in your mind as to the method, what were the several methods?

A. I don't remember in what connection I used it, whether it was past or present.

Q. Well, you stated there had been other measures or methods of ascertaining the value of gas properties than the reproduction method—what did you have in your mind?

A. The thought at the time in my mind, I endeavored to give in a general way expression to those general methods which—my recollection is I was talking about going value——

Q. No, it was in response to the question of Mr. Guernsey as to why you adopted the reproduction method and in your explanation you stated that you adopted it because you thought it was in this case the only available—I think you used the word available—it was the only method you thought could be used to reach a fair valuation. Now what other methods in that connection did you have in mind?

A. I think in that connection I must have had in mind——

Q. Here is just what you said Mr. Randolph—page 1596 of the transcript—after the question "I don't think I can tell you exactly how long." You further answered: "Ever since I can
1645 remember doing any work in this line I have been working upon reproduction, when no other measure was available. In many cases in the past there have been other measures in the purchase of gas companies available." Now what others?

A. Just what I think I had in mind was something relating to the past and in that connection I had in mind the measure of earnings, measuring the property by the earnings that was produced.

Q. Well, that is still a recognized measure, isn't it?

A. Yes, I think it is a recognized measure under certain conditions; but every specific case has got to stand on its particular conditions.

Q. Yes, that may be all true enough, but I want to get the different methods that have been used. Now in addition to the reproduction and earning power, earning capacity method you yourself have used other methods in arriving at values of gas properties, haven't you, than either of these?

A. Why I combine all known methods to me in arriving at any value of the property I want to purchase—I would want to know all about it. I would want to know the cost as nearly as I could get at it, its earning power and all the various elements that I could think of.

Q. And the reason you want to know that as a purchaser of gas property is because you recognize that all of these things have something to do with the worth or value of the property?

A. I think so; have some bearing on it.

Q. Now take this very case, for instance, the Des Moines Gas Company, if it was of recent organization; that is to say, suppose when you were called out here you were informed that the Company was organized five years ago and commenced its business new
1646 then, and had kept a complete and full record *record* of its business and its books, simply been running for five years, and you were asked to fix a value on the property how would you have proceeded?

A. Why I would have gone into the details of the books and also into the details of the physical property and seen what they had.

Q. Yes, you would have ascertained how much money they actually put into the business, what they had been earning in the business, gross and net, and all the other facts you mentioned a moment ago that might assist you in forming a judgment as to the worth or value of the property?

A. Yes.

Q. Now, in that connection, Mr. Randolph, is it not true that in at least one or more cases you fixed the value upon gas property by ascertaining its original cost to the owners of the property and then measuring or deducting the depreciation as you found it and the remainder being taken by you as the value of the physical property?

A. You mean that is one of the methods I have used in a rate case?

Q. In a valuation case—don't matter whether it was a rate case or not—in fixing value on a gas property.

Question repeated.

A. I don't recall such an instance.

Q. That method has been pursued to your knowledge very often in gas cases, hasn't it? I mean now to get at the value of the physical property—I am not talking about these added costs or items that have been referred to.

A. I can only tell you what comes within the range of my experience. I don't think I have known, at least I don't recall a specific instance where that exact method has been used in the trade or barter between individual purchasers of the companies.
1647 Those questions always come up, how much a fellow paid for it and how much he is going to sell it for and they are given for what they are worth; but to determine the question you raise is an exceedingly difficult thing, what was paid for the company.

Q. I know—you seemed to give as one reason yesterday why you accepted the reproduction theory rather than the original cost theory, yesterday you gave as a reason that it was often difficult to get the original cost and the figures for original cost were not always available. Did you mean us to understand that because these figures were not available because the cost was hard to get was the reason why you adopted the reproduction theory?

A. No, that is not the controlling factor there. When you purchase anything you purchase as of a given time and it is immaterial to you really what the other fellow paid for it and what it cost him, providing your minds have met and he wants to sell and you want to buy. If he is not going to separate himself from his property for less than a certain amount, the fact that he gave more or less for it is not a controlling factor. It is largely a question of time as to when you wish to determine the value.

Q. Well, would you as an expert adopt that theory in a rate case where it was simply a question of a reasonable return?

A. I think so; I think that as of the time that the inquiry is made appears to me would be a reasonable period for determining the values.

Q. I thought you said yesterday with considerable emphasis that your theory was that in a case of this kind and of every kind where the question of value of the property was at stake, was the
1648 theory that the owner was entitled to a return of each dollar that he put into business and that it was that dollar that went into the business and a fair return upon it that you took into consideration in measuring values?

A. Well, yes, if you can follow that, that relates more to equity.

Q. Equity is what we are trying to get here.

A. If you are getting down to equity of the original dollar that we are discussing, then if you can trace that dollar from its origin to the present time and give it a fair return——

Q. That would be your idea of what would be fair?

A. Well, I am not sure that I would. Follow that to its logical conclusion there on the facts, if that dollar was invested one hundred years ago and they had never gotten any return on it up to the present time, I don't know that I would want to make a person and future generations suffer for the errors of the past.

Q. Of course that would be an extreme situation.

A. We take extremes to illustrate the point.

Q. If I got your idea yesterday I agree with it fully, and I think it ought to —applied, if it can be, and especially in the case of bargain and sale. Now if you could ascertain from the books of this company every dollar that has gone into the business of the Des Moines Gas Company, and then in addition to that, ascertain just what that dollar has earned up to the first of January last year, that would furnish a fair basis, or at least one of the necessary items that the Master should consider in fixing the value of the property?

A. I think that would be an item I would give consideration.

Q. Now, to get a little ahead of my examination to get going value right in here, or rather, cost of development is the term you
1649 used rather than going value—in stating your theory yesterday or your notion of investment and in using this item as you call it, development of cost, that according to your theory and your method represents actual dollars put into the business, does it not?

A. Yes, that is my effort in this case, to measure the tangible

assets of the company and those things, to my mind, are tangible that you spend the money for, put the money into.

Q. You wouldn't of course add anything to the value in this property that in itself did not represent investment, would you?

A. It works itself out in my mind that this is the least value I would put on it. I would qualify that by saying that if a franchise is recognized by the law as having value, that right is theirs and it belongs to them as property and they should be given credit for it. That is a matter of law, and I am simply going along the line that I can specifically measure and be of aid to counsel.

Q. That is all right; I understand you that all the items that enter into your gross valuation in your judgment represent the actual expenditure of money?

A. As far as I have gone. I think there may be some other values there if we can measure them, but I have not yet seen how to measure anything that——

Q. Well, if it should appear—let me put another question: In arriving at these values you proceeded all the time on the theory of a fair return upon the dollar invested, haven't you?

A. Yes.

Q. And it would be impossible to arrive at anything like an intelligent valuation of property of this kind without considering a fair return, wouldn't it?

1650 A. I would find it difficult to reach a conclusion.

Q. Now with that in mind, if you could start at the beginning of this company and trace the first dollar of the investment and follow that on down to the first of January, 1911, and you were satisfied from your examination and the proof you had as to these dollars that were invested that from the beginning more than a fair return had been received by the company on each of these dollars down to 1911, there would be nothing left upon which you would want to fix value, would there, except the actual physical property that the company had to show for its investment?

A. Why, I think there would be.

Q. What would it be—what would be the nature of it?

A. I think it would be whatever they owned at that time. Now I think that this point is probably not stated with the qualification stated by me, that in thinking of *of* the past you must also think of the conditions that existed in the past. If you are going to see that a company gets a fair return, you must see that they get fair protection, you must see that they will not have to fight for their lives and are not subject to excessive hazards and all that during the early period.

Q. Well, but when people are getting a fair return on their money they ought to be able to take care of themselves?

A. They may get more than a fair return; there is no regulation, no law; the question does not come up, just the question of an open sale of whatever article you have, providing no laws or regulations are broken; it seems to me there is no reason why *why* the company should not get all the tariff would stand.

Q. Yes, that would be perhaps all right in a cold-blooded bargain

and sale deal of property; but we are dealing now with the question of a fair charge for the public use of property. Now you
1651 wouldn't contend a minute, would you, that the Master ought to allow the value or add the value of a single article or a single element, if I may use that term, to the value of the property of this company which represents something that is not used in giving the public service, would you?

A. Which is not used or useful or could be used——

Q. No, not used in giving the service for which the rate is to be fixed?

A. I would think it was all right in taking in things that were used, useful or could be used.

Q. But this company might have a lot of useful things that do not belong to the gas business at all?

A. Well, if they have got some other industries on hand not applicable to the gas business, the profit or loss of those particular departments I don't think——

Q. Suppose it had $50,000 of surplus earnings on hand in the bank, undivided profits, ought that to be added to the value of the property for the purpose of fixing a fair rate?

A. If I understand the term surplus correctly, that surplus, if it has been legitimately earned, belong- to somebody else; it belongs to the stockholders; it is for the stockholders to say where that shall be put, whether in their pockets or back into the plant.

Q. You wouldn't add it to the value of the property for the purpose of fixing rates unless it went in?

A. No, not taking into consideration surplus. It is immaterial to me whether the surplus is put into the property, whether going first into the hands of the stockholders and then coming back in some other form.

Q. If it actually goes into the property and is in the property and being used to furnish service, then I would agree with you
1652 fully it should be counted. Now suppose this company on your theory had a holder down here somewhere that was not being used in the business; they had no need for it in the business; it was down here, worth say fifty or sixty thousand dollars, but it is not connected up and it is not serving the people in any way, but it belongs to the Gas Company; now you would not add that to the value of this property for the purpose of rate making, would you?

A. If I saw that holder was there, that it could be used, that the management were not using it for some reason unknown to me, but that I could see there was a ready use for it, I would say certainly.

Q. That is begging the question.

A. I am qualifying it.

Q. I mean on the first day of January, if they had this piece of property there and if the money went back into the business and was doing a part of the service, of course it ought to be added, and I would readily admit if this holder should later be put into use and become a part of the property, then it ought to be added; but here on the first day of January they get a holder that is not being

used in any part of the connected up property, but stands there, and is worth fifty or sixty thousand dollars, that you would not add to the valuation of the property that is to be considered in fixing a fair rate?

A. If I was going to buy the property I would add it.

Q. That is, if you was going to buy and wanted to buy that?

A. And thought it was useful in the business. If you will frame a question that will show that there is something down there that they have got which is not used and cannot be used and do not want to use and I see no particular use for it in the near future,

1653 then I admit your reasoning.

Q. Suppose if they had down there in the plant the piece of machinery that is no longer fit for the business, I don't mean because it is worn out or decayed or anything of that kind, but because it is out of date and is not the thing to be used here, and if used it would not be economy, but it might be used somewhere else and it might have a value of fifty or sixty thousand dollars to be used somewhere else, would you add that to the value of this property?

A. I would in this sense, when the investment is made on a piece of apparatus of that kind, the over-period it becomes obsolete, that apparatus must be found there in the cost of your product, or in the fund set aside for it; it belongs in the cost but not as a reduction to capital; it is a part of depreciation, but not a part as a reduction from capital.

The MASTER: Here is an item on page 6, benches, $20,500.

A. I classed that in the same category with all the other elements of depreciation. I don't know but one other item, the old water gas apparatus I put an excessive depreciation on both benches and water gas apparatus; the benches are not absolutely decayed, but they come in that class you just mentioned where it would probably not be economy to use them longer.

Q. I don't want to get away from what I started to do; you get back to my question; the apparatus I am asking you about is not connected up; it would not be profitable to connect it and it could not be used in the business with the other machinery of this plant, the gas plant has outgrown it, yet it is so far as its condition is concerned, it would answer somewhere else; it would fit in in some other system, so it has fifty or sixty thousand dollars value, but is not useed in the service here and will not be, you would not

1654 add that, would you, for rate making purposes?

A. I would take some of the other elements into consideration which we talked about. I would take into consideration whether that piece of property had already been wiped out in some form in depreciation; whether it was theoretically in existence on the books and had gone into operation and was wiped out there, then that would answer itself. If on the other hand a fair return had not been gotten in that original investment, hadn't had a fair return, then I would look to see if they had a surplus and if the surplus was sufficient so that you could switch it to the depreciation

instead of into the stockholders' pocket, then it seems to me an open question as to whether it should not be considered as capital.

Q. What would the consumers here have to do with paying a return after the first of January, what do they have to do with furnishing this Gas Company a return upon a piece of machinery that was not being used to serve them at all; do you see any sense or justice in such a rule as that?

A. There seems to be some force in your statement there, but I don't think you have stated the case specifically enough for me to answer quite definitely yes or no.

Q. Let me put it in another way then so that you can answer yes or no. Suppose that the maanger of this gas company in the exercise of his discretion on the 31st day of Last December, to make an illustration more definite, say on the first of last October, had purchased at the cost of a hundred thousand dollars a piece of gas machinery, some new device that was thought would revolutionize the gas business and brought it on here to Des Moines and set it up down in the plant and found it wouldn't work at all, they could not tie it up to this system and make it go, had no use
1655 whatever so far as the people who are going to buy gas in Des Moines are concerned, but stands down here and costs one hundred thousand dollars, and it is worth something to take it somewhere else; would you add that?

A. No.

Q. Can you tell the Master where one single dollar of this five hundred thousand dollars that you added is of use in serving the consumers of this city from the first day of January on?

A. I don't know that I can; the——

Redirect examination by Mr. GUERNSEY:

Q. Had you completed your answer to that last question?

A. I was going to think loud and see if I could produce a reason for the faith that is in me that the five hundred thousand dollars as an element of cost should be added, to see wherein specifically it was serving the public. It has cost getting these new consumers and it has a loss of interest, and it seems to me those elements stand exactly in the same category as interest on the plant during the period of construction which it is generally admitted is one of the elements of cost.

Q. Now just a few words, you referred a few moments ago to two or three items including benches for coal gas which had, you said, depreciated very heavily; you depreciated one hundred per cent; now aside from the items which you so depreciated, I wish you would state what if any items you found in the plant that were not either used or useful in the manufacture and distribution of gas here in Des Moines.

Objected to on part of defendants as incompetent, as not re-examination.

1656 A. I have referred to the benches as heavily depreciated, they were not being used at the time. The water gas ap-

paratus, the two six foot sets I depreciated unduly heavily really because of physical decay in that apparatus—it is really not very great—it just looks bad because it has not been run for several years, but it is ready to run. I am inclined to think that could be classed as an emergency apparatus. Take the rest of the water gas apparatus, they are of modern type and economical in their operation as much so as any water gas apparatus that is made. The only criticism that a layman might make on that is that there are three sets there that with their combination would make in a day possibly twice as much as one day's out-put; but you have to take into consideration that the mechanism of that kind don't run indefinitely; they would have to be shut down; that the daily output of the gas must be maintained, so that you have to have spare machinery, and that comes in under the head of spare machinery and also in the class of useful machinery, so that with these exceptions at the moment, I do not recall anything down there that was not used or useful in the business. There might be some minor things.

Q. Mr. Byers asked you about the valuation of a plant that was five years old and going into the matters of cost and so on, in arriving at the value; please state whether in such a plant you would also go into the present physical condition for your value?

A. Yes, sir.

Q. You spoke about measuring the value of earnings, what do you mean by that?

A. In the ordinary talk I mean capitalization of earnings.

Recross-examination by Mr. BYERS:

1657 Q. In your examination in chief yesterday you said you had data showing the meters scrapped and repaired, have you that data with you?

A. I think so.

Q. I wish you would produce it?

A. I will tell you what it is. I don't care to let you see the original. I don't care to separate it from the rest of the papers. I have got them all intact. If you want to make a copy of it——

Mr. BYERS: I would like to have the reporter make a copy of it.

A. I could give you all the substance of the data that you want, I think.

Q. I don't care a cent about looking at any private memoranda you have. I simply called for that data and if you can read it into the record, all right.

A. What were the elements you wanted?

Q. The number of meters scrapped and the number repaired and renewed.

A. The number of meters repaired, renewed and condemned for the year 1906 amounted to 703; for the year 1907 amounted to 519; for the year 1908 to 851; for the year 1909 to 819; for the year 1910 to 536. Now while I am giving that data, I also referred in chief to a number of meters that were removed and repaired.

Q. You stated in that answer there were 45,000; did you mean 45,000 or did you mean 4,500?

A. I think I said 3,400.

Q. You said 45,000.

A. The sum of the figures I have just given you covering the period of five years, amounts, according to my figures to 3,468.

Q. Now, when I was referring to the number of meters taken out and removed I only had four years before me and I was
1658 carrying an average in my mind. I will give you the figures as far as they go; number removed in 1907, 8,708.

Q. I want the record to show, not that you are swearing now to the numbers, but that you are simply giving data into the record.

A. I am giving data that was furnished to me. In 1908 there were 8,226; in 1909, 9,482; in 1910, 9,297. Now to complete the five year period, for comparison, you would have to have the year 1906. I saw it, and saw further back the record; I not only looked over this particular thing, but looked the whole bunch over.

Q. Now what was it you gave us for 1910?

A. 9,297.

Q. And what does that number represent?

A. That represented the number of meters that were removed for one cause or another from the consumers' houses in the city of Des Moines and brought back to the company's shops and tested because every meter is by their rules tested and if found within certain limits of error, it is regarded as correct, painted and put back in the stock and ready to go out; if upon test it is not within the limits of error then it is sent off to be repaired, and if it is very bad it is condemned.

Q. That testing business is for the purpose of making sure that the meter is registering all the gas that the consumer gets?

A. It is for two purposes: to make sure that the company is getting all that is coming to it, and to make sure the people are getting all that is coming to them.

Q. Is that the plan that is followed here, that a meter must be taken out and taken to the shop in order to tell whether it is registering correctly?

A. That is the only time I understand the meter is tested,
1659 unless there is some particular cause or complaint when they specially test the meter.

Q. They can be tested right in the house?

A. They can be tested in place by a mechanism that is not as accurate as the mechanism set up in the gas company's office.

Q. Now there is one thing more, does your physical decay as you have used it in your typewritten report, Exhibit 22, include depreciation from inadequacy and obsolescence?

A. The only two cases I have given there which come under that class are the benches and six foot water gas sets. The only explanation I can give for that is inadequacy and obsolescence, but I have taken in these elements something more than decay.

Q. Aside from this wherever you have figures in your Exhibit 22 representing in your judgment physical decay as applied to the present condition of any article there is no depreciation or inadequacy or obsolescence in it?

A. No.

Redirect examination by Mr. GUERNSEY:

Q. Mr. Randolph, one word more in connection with this matter of original cost, in referring to original cost, do you mean to have us understand that when you take that into account you disregard appreciation in items like real estate or anywhere else where it may appear?

A. No; I don't mean to say I am governed by the cost; I should say that is an element and I would consider it, and also consider appreciation from whatever cause I found it to exist.

Q. To go into these meters for a moment, you gave first a list of meters that were condemned, is that it?

A. No, I gave the total condemned and repairs.

1660 Q. Do you know whether that includes meters destroyed by fire?

A. I am not sure whether it did or not. I think it is more than likely it may have done so. I have no item specifically that indicates there were any meters destroyed by fire.

Excused.

WILLIAM J. HAGENAGH, being first duly sworn on part of Complainant, examined in chief by N. T. Guernsey, Esq., testified:

Q. Your name is William J. Hagenagh?

A. Yes, sir.

Q. Where do you reside?

A. At Madison, Wisconsin.

Q. What is your business?

A. I am a Public Utility Statistician.

Q. What official relation, if any, do you sustain to the Commission of Wisconsin?

A. I am chief statistician of the Railroad Commission of Wisconsin.

Q. How long have you occupied that position?

A. I was appointed to that position the second or third day after the passage of the Wisconsin Public Utilities law and assumed my duties on August 1st, 1907.

Q. This commission you have referred to is the Wisconsin Commission that has to do with public utilities?

A. It has jurisdiction in the regulation of rates and serv-

1661 ices of all public services in Wisconsin, both railroads, local utilities, embracing telephones, street railways, water, gas and electric light and power companies.

Q. Now in connection with your work for that Commission, what have been your duties?

A. When the public utilities law was passed in Wisconsin, the commission had authority over only railroads, steam roads, and interurban and electric railways. The utility law extended its authority over all local utilities. One of the provisions in that statute was that the commission should prescribe a uniform classification of accounts for all public service corporations. That duty was assigned to me. I spent the greater part of my *fir* first year in designing such classi-

fication of accounts, together with blank forms of reports to be used by the companies in their business of reporting to the commission. The work of course embraced the preparation of such classification which would furnish to the commission all the information which it needed in connection with the work of cost analysis and rate adjustment. The conditions under which the utilities operate in Wisconsin are rather complex. Owing to competitive conditions, water companies and electric companies have combined in the interest of economy because both could use a single boiler plant. The gas and electric companies have combined because they are competitors in the field for furnishing light. The fact that many utilities in Wisconsin are owned by cities, also served to complicate the accounting requirements. The classification therefore had to embrace, not only technical problems for accounting for each utility in its own field, but it was required to be sufficiently elastic and thorough to permit of
the accounting requirements of the largest companies, such
1662 as those operating in Milwaukee, and the very smallest companies, and to permit the reporting upon the same classification of accounts where one corporation was operating two or more utility services. Another element which served to complicate the work was the fact that many companies in Wisconsin furnishing public utility service are also engaged in private service, such as large lumber companies and general stores and saw mills and logging companies; those companies often practically own the entire city and in connection with their private duties furnish utility service and in our classification of accounts we had to recognize that situation, and we spent practically a year to fit this complication of inter-relationship between the different classes of service.

Q. Now in addition to your work in preparing this classification of accounts and the reports made by the utilities for the use of the commission, what other work have you had charge of there in Wisconsin in connection with the commission?

A. In my position as chief statistician I had a force of about thirty assistants; all the companies under the jurisdiction of the commission were required to make annual reports. Those reports were all referred to my department; in connection with reviewing those reports and their analysis when the particular utility became a party in interest in a case involving rates of service before the commission. We had according to our last report something like 1,080 public service corporations and 8,000 miles of steam road reporting to the accounting and statistical department. Those reports were all classified tabulated and audited to find if there were any errors in accounting, or any studied effort to avoid the requirements of the public
utilities law. Wherever we found any inaccuracies in a report
1663 it would be necessary for some one to visit the utility in question and to audit the books. This was especially necessary when the utility became a party in a rate case. I finally reviewed all those reports before the commission and I was responsible for it and practically all of the outside auditing work performed for the commission was done by myself. This auditing covered street railways, electric light companies, telephone, water, and gas companies, and

occasionally the checking of reports of steam railroad companies having offices in *in* Chicago, St. Paul or Minneapolis. In connection with my work there I was also assigned the duty of classifying and distributing the operating expenses of the companies when they became a party to a case, and that necessitated more or less elaborate analysis of the engineering conditions of the plant, which engineering data was furnished by our engineering department, but the distribution of the accounts both operating and capital for the purpose of rate analysis was done in my department and under my direction. I also assisted in the preparation of practically all the utility decisions which the commission handed down, until a little over a year ago when I was given a leave of absence, and have been connected with the commission since then only on odd intervals on particular pieces of work referred to me.

Q. Do I correctly understand you that all this mass of accounting and reports were under you?

A. They were under my direction and much of the work I did myself. At least checked it and put my signature to the work before it was referred to the commissioners or the commission itself.

Q. In connection with the matter of the form of these reports and all this classification you refer to, having in mind the require-
1664 ments of the commission with reference to the accounts which would be material in connection with rate making, I wish you would explain the fundamental things that you wish to derive from these accounts for use in the regulation of these utilities, and why you would separate them—you referred to the capital account, for instance, and operating and things like that?

A. Our public utilities law defines and prescribes the process which the commission is to follow in prescribing a rate which is considered reasonable for the service in question, and as the basis of its work of analysis along this line, the utility law requires that the engineering department shall make an appraisal of the property and that all utilities shall keep their accounts and records in accordance with the classification prescribed by the commission. The engineering department and accounting and statistical department were therefore required to shape their work largely to suit the necessities of the commission. Our basis of rate adjustment in Wisconsin is largely on the cost theory. We do not have that absolutely; that to us is a guide. We take into consideration every other element which affects the subject. In order to determine the proper cost of a service it is necessary to have a proper and scientific classification of accounts and our classification therefore follows naturally the chronological order of service production. To be specifi*f*, I can refer to the gas industry. The first logical step to satisfy the public demand is the manufacture of gas. Having manufactured it, you distribute it. Having distributed the gas it becomes a problem for the commercial department, advertising, service, making delivery of the bills, the collection of the funds and the office work incidental to that service. The
1665 next logical step is the general office expenses, embracing salaries, expenses of general officers, taxes, insurance, and those items which are of a general and overhead nature in the course

of operation. Over and above these logical steps there are certain accounts which do not naturally fall in any one of these particular groups, which we distinguish as undistributed accounts, making it optional with the utility to carry those into the clearing account, or directly into the major groups of operating accounts. Whatever course is followed by the company must be reported in great detail to the commission. Since our companies are of the largest kind, those operating in metropolitan cities, and very small companies, our classification must naturally go farther and carry these accounts into the proper logical groups. The manufacture of gas in a small company might be reported in one or two accounts. The simplest classification would be two accounts under each group, namely, labor and material; labor covering all human service, and material including the material consumed in operation and in maintenance. Maintenance in its broadest sense would include current repair and depreciation, or what is often called deferred maintenance of the service. Our classification of accounts considers depreciation as an operating account.

Mr. BRENNAN: Is this for the purpose of qualifying this witness or to put into the record the method pursued in Wisconsin?

Mr. GUERNSEY: It is partly for the purpose of qualifying him and partly preliminary to some other matters.

Mr. BRENNAN: We object to this answer as being incompetent, irrelevant and immaterial.

Answer (continued). With these major subdivisions we classify every expenditure of the company between capital accounts
1666 and operating accounts, entering into the operating column only those accounts which according to our classification are to be charged to the cost of the service in the operating department. To these accounts as actually expended by the company we add such amounts as our analysis of the question of fairness and reasonableness in each case makes necessary, and upon that analysis we base the rate which we deem to be fair. This distribution would of course be carried further into such accounts as fixes an available portion of each expenditure to show that part independent of the output and that part directly connected with the output.

Q. You have talked mostly about operating, what care do you take to distinguish between operating and capital accounts?

A. We take the greatest care.

Q. Why?

A. That is very material to the rate. If the capital accounts were charged into the operating expenses, it would very materially increase the book statement of operating expenses or costs per unit of service; if it is charged to the capital account it is not then affecting the operating expenses nearly so much, because the operating expenses must then carry only a reasonable rate of return upon the amount charged into the capital account; whereas, if it were put in the operating account, it would have to carry all the expenses.

Q. What if any connection did you have with the preparation of the classification of accounts used by the public service commission in New York?

A. Shortly after the passage of the New Lork law, the officials of that commission decided that it would be of great advantage if all the public service commissions would follow a uniform prac-
1667 tice. The officials called a conference in New York which was attended by representatives of the Massachusetts commission, the state commission of New York, or the second district, and the first district or the Manhattan commission, and the Wisconsin commission; I was the Wisconsin commission representative at that conference. We spent about five or six weeks in New York City in preparing what we hoped would be a single classification of accounts to be followed by all public service commissions in the country. We invited to that conference representatives of several of the largest utility interests in the country in order that we might also give proper consideration to the corporation side of the problem of accounting. Owing, however, to certain differences existing in the Wisconsin law as compared with that of the New York and Massachusetts laws, the final classification- as adopted are not exactly alike, but in sufficient detail that anyone familiar with the classification may easily distribute the operating expenses. Our classification is a little more detailed owing to our greater adherence to the cost theory in the classification of operating expenses.

Q. Are you familiar with the classification of accounts which is used by the Des Moines Gas Company?

A. Yes, they follow the classification prescribed some years ago by the American Gas Light Association. That association in order to permit its members to compare operating results prepared a classification of accounts, with instructions to *to* all their companies to adopt. They had just as we have in Wisconsin large companies and small companies, and their classification embraced a major and junior classification. It differed principally from the Wis-
1668 consin classification in that it is not so detailed in its requirements. It is possible however for any company to subdivide its accounts and getting into them as much refinement as may be desired, as long as it does not violate the principal provisions.

Q. Have you made any investigation of the books of this company in which its accounts are kept?

A. I have.

Q. Have you made sufficient investigation to enable you to say whether in your judgment the accounts of the company are kept properly?

Objected to on part of defendants as being incompetent, in the form the question is put.

A. I observe that this company follows the classification prescribed by the American Gas Light Association. I have taken that classification and the accounts as carried by this company an- compared them to the accounting requirements of public service commissions and I find they do conform to the proper accounting requirements. There are, owing to the requirements of the classification they follow, some different methods of handling different accounts, but that is a matter that can be easily arranged and merely affects the question of unit departmental cost. The principles followed are proper

and they have been correctly followed and their accounts are correctly kept.

Defendants move to strike the answer as incompetent.

Q. What period did you examine?

A. The period following, as I recall, March 1, 1906, to January 1, 1911.

Q. Now, passing this question, you said a leave of absence for about a year; have you done any work during that year in
1669 connection with public utilities, if so, what?

A. I have. I secured my leave of absence for the purpose of assisting the committee on gas, oil and electric light of the City of Chicago in arriving at a proper schedule of rates for telephone service. The company there had an investment of about $23,000,000 and is furnishing nearly a quarter million telephone subscribers with service distributed over 27 different classes of service. My work for that committee was to prescribe a proper schedule of rates for the city of Chicago for those 27 classes of telephone services. Before I had completed that I was requested by the same committee to prepare and analysis of the books and records and accounts of the People's Gas Light & Coke Company of Chicago, and to report to the committee what I deemed was a reasonable rate to be charged for gas for the next five years. Both of these reports were submitted to the council committee during the spring of this year; the telephone report in May and the gas report in April. During this time I was also engaged in similar work for the Wisconsin commission and in work involving the preparation and criticism of rate schedules in other cities; those schedules being for gas, water, electric light and telephone service outside of Chicago.

Q. Now, in connection with your examination of the accounts and the method of keeping the records of this company, what study did you make of the forms and blanks used in the conduct of the company's business and what conclusion did you reach?

A. That was one of the first steps which I undertook in the examination of the company's books—I examined the forms which they
1670 use and the voucher blanks and the reports which they make of their business at the end of the year, and in the ordinary course of their business. I should say that those blanks were well adapted to conducting a business of this kind. Every company naturally adopts forms which suit the peculiarities of its own business, or the notions of the men who are to keep the accounts. In this case as far as I know the blanks are practically those which every large company could use in the conduct of its business. I know nothing about their forms to their prejudice. I should say they were designed for an economic conduct of the business.

Q. Do you remember whether you did anything towards examining and checking the authorizations during this five years' period?

A. Yes, I did. The company under its relation here with the United Gas & Improvement Company is not permitted to expend money except on authorizations from the Philadelphia office. My recollection is the amount they are allowed to expend without author-

ization is limited to only fifty dollars. This is a very decided check upon the expenditures of the local office and insures accuracy and care in keeping the account and also economy.

The MASTER: Fifty dollars for improvements?

A. They cannot expend any more than fifty dollars without securing authority from the Philadelphia office.

The MASTER: Do they pay their salaries through the authority of that office?

A. Not on the operating expenses.

Q. I believe you said you done something in the way of checking these authorizations; what was the result of this check?

A. I checked that in connection with my review of the company's maintenance accounts. In general I found that they were adhering very closely to the prescribed classification, distinguish-
1671 ing carefully between what is capital expenditure and what is maintenance expenditure. The Company has not been carrying a depreciation reserve and I therefore was interested in knowing if any replacements had been charged into the maintenance accounts and for that purpose I believe, I checked the authorization for three years. I found some accounts which I felt should have been charged to the capital account or depreciation account which have been included in the operation expenses. These of course should be deducted in order to properly show the cost of the business in question.

Q. Now in the course of your auditing of these books, what attention did you give to the vouchers for the three twelve month periods beginning December 30, 1908, 1909 and 1910 and also for the entire year 1910?

A. All the vouchers for that period were examined by accountants in my employ. I might say in that connection I have a rather large staff of engineers and accountants in my employ, and the checking of these accounts was in part performed by my assistants, but I supervised the work and approved all the classification and prepared the report. But I did personally examine every voucher for the calander year of 1910.

Q. I think in my question I referred to those periods as commencing September 30th, when I should have said ending September 30th. Did you find any vouchers missing?

A. There were a few vouchers missing. Some had been mislaid in other parts of the building by the different employees and some few could not be located at the time I requested them; so the company supplied me with a carbon copy of what I understood to be an exact copy of the voucher and which satisfied my desire for information on that particular subject.

1672 Q. Now during what period did you, or for what period did you analyze the construction account?

A. In connection with the auditing and analysis of the vouchers, we of course took into consideration every expenditure for capital purposes during these last few years. I think it was from March

1, 1906, at the time the Des Moines Gas Company succeeded to the com*a*pnies operating here before that date. I did not audit the books prior to that time but did call for and was furnished with statements showing the detailed charges to the construction account for all years prior to 1906 to as early a date as 1886. These individual expenditures I did not personally examine but I did examine the total amount added at the end of each year to the capital account, and then analyzed that total by reference to the detailed charges which were furnished to me to satisfy myself whether they were proper construction charges.

Q. Now I wish you would turn to page 24 to that memorandum which says that the construction account was analyzed from 1886 to 1910, no records being available prior to 1886, and that during these years each charge to construction was examined and traced. The memorandum I just referred to is the one marked Exhibit 23; now do you remember whether in making this audit this was done by yourself or your assistants under your direction?

A. The earlier work for the earlier years was performed by my assistants under instruction and direction from me and they reported their data to me. But the work for the last year I did personally and I performed such checks upon the work from time to time as would assure me of the correctness of their work.

Q. Take the profit and loss account, what did your analysis in that show?

1673 A. They show the earnings and operating expenses of the company for the years in question, the profit and loss statement which I prepared being carried out to the surplus for the year as shown by the company's books, to verify any inaccuracies of the company's books. In my analysis of these vouchers I learned of course of the relation between this company and the United Gas Improvement Company. I had known before this that this company was one in which the United Gas Improvement Company was interested.

Q. Now, how do those relations affect the financial strength of this company, for instance?

Objected to on part of defendants as incompetent.

A. You ask a question which is as broad as the whole utility question. The problem before most utility companies had been the financial problem, of properly providing for its financial requirements. The tendency because of these conditions and many others which are peculiar to individual utilities, has been for the formation of operating companies or syndicates either owning outright and operating many utility companies or buying control in these companies through the ownership of stock. By a single company owning a large number of utility companies, this company is able to supply the individual companies with a character of professional skill which the individual companies could not possibly afford if operating along, and the stability which is furnished to such a corporation owing to the fact it is operating over a very large territory and the interests so greatly diversified gives a very large credit to a

single company. It really amounts to in this particular instance of the Des Moines Gas Company borrowing or having extended
1674 to it credit of the United Gas Improvement Company. Ordinarily in my work of examination I would want to examine very carefully the relation between such a subsidiary company and a holding company because of the opportunity which is afforded when there is no regulation for an abuse of such relationship. I may add in this particular case I was particularly anxious to satisfy myself if there was any such abuse of the power which would be given to a controlling company by virtue of its ownership of the stock. I examined their relations very carefully for that reason, and I have not found anything which would be to the detriment of the local company. On the contrary, I would say that any utility which is a member of such a large operating family will receive substantial benefits from such control if the work is conducted in a perfectly fair, scientific and legitimate way. As far as I know the work is so conducted in this case. My attention was particularly called to that question by some of the vouchers which I met in the analysis during the year 1910.

Mr. BRENNAN: The defendants move to strike from the record the answer of this witness as incompetent, irrelevant and immaterial. Because the answer states a number of conclusions upon which the witness has no right to a conclusion and those conclusions are so intermingled with *with* the rest of his answer that it would be impossible to separate them and we therefore object and move to strike the entire answer.

Q. On page 25 you refer to the services performed by the purchasing agent of the United Gas Improvement Company.
1675 What did your examination of these records disclose in these accounts as to that matter?

A. I found in the operating expenses a charge for ten thousand dollars in the form of salary vouchers for parties connected with the United Gas Improvement Company. Some of the names I recognized and entered a question as to who the other names were and I was informed they were parties connected with the United Gas Improvement Company and that these men furnished services of a technical character, such as engineering, accounting and advice from an operating and construction standpoint. Generally, they are men of wide experience and whose services could probably not be secured by the companies at anywhere so small a compensation as that which the company pays for them.

The defendants object to this testimony as wholly incompetent and a waste of good time.

Q. Had a charge been made for those services prior to 1910?

A. No, sir; such charge had not been made during the earlier years, the company furnishing those services so far as the books are concerned gratuitously.

Q. What is the fact as to whether the Des Moines Company profited by these purchases through the purchasing agent and purchases made in large quantity by him?

Objected to on part of defendant as incompetent, irrelevant, immaterial and not the subject of expert testimony.

A. The purchasing of supplies in large quantities is one of the economies which result from a single company owning a large number of utilities. The purchasing agent will purchase supplies for all the companies or a large number of the companies in a single lot and will order shipments to be made from the factory or dis-
1676 tribution point to the different companies as directed from the Philadelphia office. The bills are rendered to the utilities at the reduced price through the economy resulting from such large purchases and those prices are often lower than what the company could obtain if purchasing them for its own use.

Q. Did these purchases go to matters of construction as well as to things used in operation?

A. I don't know exactly whether there is any restriction upon the purchasing authority of the purchasing agent. I don't think so. I believe he would purchase for all the companies just as a single company would purchase supplies. I know he does purchase a large amount of operating material, merchandise, fixtures and stoves which the companies handle. I have every reason to believe the benefits resulting from this central purchasing department apply to all classes of equipment, machinery and supplies which the company controlled by the central office would require.

Q. Did you analyze the construction account—in the middle of page 26 I see a memorandum—if so, what do those reveal, whether that account was charged with all the expenses properly chargeable to it?

A. The construction account in this case like that in most utility companies has been charged only with the cost of labor and materials and expenses directly incident to such materials which has gone into construction. In so far as I was able to determine there was not charged to the construction account those items which would ordinarily be included in the value of a plant if determined by appraisal, nor were there charged to the construction account by these items properly charged there in the course of constructing
1677 and building up the present plant of the company. I mean by that in so far as I have been able to determine there has not been charged to the construction account the ordinary appropriation for supervision expenses on construction and engineering expenses. The interest during construction and the charges which we generally call indirect or overhead expenses on the construction undertaking.

The defendants move to strike the answer as incompetent, irrelevant and immaterial.

Q. I wish you would state whether what you call here on page 26 overhead charges, embracing engineering, supervision during construction, interest and taxes during construction, salaries of officers during the construction, etc., are proper and necessary elements in the cost of such a plant as we have under consideration?

Objected to on part of defendants as incompetent and the witness is not competent to testify.

A. They are and are so provided for and prescribed in our Wisconsin classification.

Q. How about the New York commission, do you know whether or not such items are treated by the New York Commission as proper elements of the cost of construction, such as this gas plant and distribution system?

Objected to on part of defendants as incompetent and not the best evidence.

A. I have not refreshed my memory on their classification for some time. My recollection is they do specifically provide those charges shall be made to their capital.

Q. Now I wish you would refer to page 27 and take up this question of depreciations.

A. I referred to that a moment ago, I probably anticipated your question. The operation of the company results in wear and
1678 tear of its service; at the same time there are such forces as obsolescence, inadequacy and supercession applying to the property, all of which lead to a division of the so-called repair accounts into the current maintenance and depreciation. All these charges due to the current wear and tear of a plant in operation are strictly maintenance accounts. When however over and above current wear and tear, obsolescence, inadequacy or supercession of the property, replacements are required which are in the nature of extraordinary renewals or replacements, these should be charged properly to a depreciation reserve which has been set up through credits and corresponding charges to the operating expenses for the purpose of representing the estimated depreciation of the property during the year in question. This cannot be determined with accuracy but the best one can do is an approximation. The company in this case has not carried such reserve and I therefore looked carefully at the vouchers to see if replacemony have been charged in the maintenance account, and I found some evidence of that to a small degree.

Q. Referring to the bottom of page 27 of the report, what would be the eventual result if this policy is continued of not building up a depreciation fund?

A. The inevitable result would be to show a large investment on your books as a plant account and a very small present value of the property representing such charge on the books, and if an appraisal were taken of the property at that time it would show a very disappointing result as compared with the book figures or capital liabilities of the company outstanding. It would mean that the stockholders' property has gradually disappeared and been consumed in operation.

1679 Q. It is legitimate to consider as profit the net earnings until there has been deducted from that a proper provision for these items of future depreciation you refer to?

Objected to on part of defendants as incompetent and immaterial.

A. No, sir; neither ordinary business nor law would regard the difference between actual current operating expenses and gross earnings as representing profits.

Q. You refer to a second method of taking care of depreciation in the last paragraph of page 28; will you explain what you had in mind there?

A. I said one method of caring for depreciation through building up the so-called depreciation reserve which would be built up out of charges to operating expenses; another method, one which has been followed a great deal especially up to within the last two or three years has been the method of making no charge to operating expense for depreciation, but at periodical intervals creating the crediting the construction account thus reducing the amount standing on the books and showing the investment. The result however is practically the same because a corresponding charge would have to go on the profit and loss account. It is a book keeping transaction. In this way it does so reduce the property account and to that extent recognizes the element of depreciation.

Q. Now, I see on page 29 of this Exhibit 23 a reference to three per cent per year on gas plants as an accepted depreciation rate. Will you please state what the fact is about that, what in your judgment would be a fair rate of depreciation to charge against this property on account of this future depreciation not taking care of any ordinary maintenance and repairs?

1680 A. The rate of depreciation is a matter which is very difficult to determine with any degree of accuracy. In order to determine correctly there should be an analysis of the character of all items of depreciable property of the plant, a study of the type size and the age of the property, and a computation of its composite life. That calls for information which I at the time I prepared this report did not have, and as the depreciation rate is not the same for all gas properties, I preferred to leave it to the engineer's analysis of the property here. In the absence of such analysis a rate of three per cent of *of* the depreciable property has been very often used. The rate is based upon the more or less generally accepted idea that the composite life of the average gas plant operating in a large city is approximately 33⅓ years. In general my experience leads me to believe that three per cent on the depreciable property is rather high, rather than accurate. That I really refer to the engineers here and in the absence of that data have used this for an assumption.

Q. Now, you state from an analysis of the maintenance account it appears that certain items have been incorrectly charged as current maintenance and that they are depreciation replacements or capital charges. Will you refer to Exhibit 7, a part of this Exhibit 23 that presents the detail of this matter?

A. That distribution of maintenance accounts there shows that my analysis reveal- charges to maintenance accounts which should have been charged either to capital or depreciation reserve, if such a one had been carried on the company's books. Since I made some

computations where an allowance for depreciation became
1681 material, it would have been unfair against the subscriber for service if I had added such a depreciation allowance to the present operating expense. I therefore had to make an adjustment by reducing the operating expenses to the amount of incorrect charges, and when so reduced add back to the amount a fair allowance for depreciation in so far as I could at that time compute it.

Q. Return to schedule 5 and see whether under columns adjustments, debit and credit, we have the matters you have just been referring to?

A. I have there for the years 1908, 1909 and 1910 made the adjustments through crediting the operating account with the amount which I thought was incorrectly charged to it, and then charging such balance with what I felt was a reasonable allowance for depreciation, and then deducting such total operating expenses from the gross earnings for the years in question, it gave me according to this computation, what I believed was the proper net earnings, after making an allowance for depreciation and it is very much lower than what the books show to be the net earnings.

Q. Referring again to this column headed adjustments, I wish you would state what the items under the sub-head debit in schedule 5 shows.

A. The debit item shows my allowance as assumed on the basis of three per cent of the depreciable property for depreciation. I don't want to be understood as saying just now that that is the proper amount, because it was not computed upon a basis such as I would ordinarily follow. My engineering staff was not engaged upon this work. I had no engineering data whatever regarding this plant and in the absence of that I used the ordinary rate of three per cent to give me a sort of trial figure, what really the net
1682 earnings were.

Q. You show your results contained in schedule five after your depreciation is deducted for these four periods; also at the end of this Exhibit 23 that is devoted to the subject of depreciation?

A. Yes, sir.

Q. They are compared with the net earnings as shown by the books without your corrections?

A. Yes, sir.

Q. Did you append to your report some more schedules—we will take them up in their order—take schedule 1, that is what?

A. That is the balance sheet or statement of assets and liabilities as of December 31, 1910, taken from the books and verified by the men under my direction to be correct.

Q. The next is schedule 1, Exhibit A?

A. That shows the investment in the plant on March 1st, 1906, and the adjustments through additions to the construction account and a charge to profit and loss on account of depreciation which was made in 1909. The final figure there shows the plant account as contained in the balance sheet at the close of that year.

Q. Before you leave that, you stated this was an adjustment by

the additions to the plant account; are those the items that make up $525,360.76?

A. They are.

Q. What is the item charged off on account of depreciation?

A. That is the second method of making a credit to the construction account and the corresponding charge to profit and loss. During the period I examine the books of the company there had been no adjustment other than this single item.

Q. What was the amount of the item?

1683 A. $264,108.78. Now that might be assumed as being the only provision for depreciation at the Des Moines Gas Company during its corporate existence.

Q. Now, what is schedule 1, Exhibit B?

A. That is a tabulated and classified statement of charges to the construction account from 1886 to 1910. These items embraced in the total at the right hand margin of the page were in a much greater refinement on the books of the company, but for simplicity they have been condensed under the five principal heads embraced in this table. The table shows the total charges to construction from 1886 to 1910 on account of this plant as $1,928,016.65.

The MASTER: The figures in red there, what are they?

A. Credit during construction. The black figures represent charges. You notice in the total instead of adding anything to the property they actually reduce the property account by $149.

Q. Now what is Exhibit C to schedule 1?

A. Exhibit C, schedule 1, shows the inventory of the stock of merchandise of the company at the close of business December 31, 1910.

Q. And Exhibit D to schedule 1?

A. That is a classification of the accounts receivable of the company.

Q. And Exhibit E to schedule 1?

A. That shows merely the single item of cash which the company had in the bank in its current working funds at that time.

Q. And Exhibit F of schedule 1?

A. A schedule of the stock account as shown on the company's balance sheet.

Q. That is an item of the capital stock in schedule 1,

1684 Exhibit A and schedule 1 also.

A. Yes, sir.

Q. And what is Exhibit G to schedule 1?

A. That is merely an analysis of the bond account shown on the general books. It shows the amount of bonds authorized, the amount issued, the amount outstanding, and the characteristics of the bond, and the amount of bonds issued from time to time, making up the present outstanding liability on account of this issue.

Q. And it explains the items of bonds in the first page of schedule 1?

A. It refers back to schedule 1, the item of bonds on the liability side of the balance sheet.

Q. What is Exhibit H to schedule 1?

A. That is an analysis of the preferred stock contracts which were

issued in 1906, but which have since been reduced to the present amount of $411,000, and refers back to the third item on the liability side of the balance sheet in schedule 1.

Q. Then is Exhibit I to schedule 1 in the same way a detailed statement of the accrued accounts, making up the item $58,817.07 in the balance sheet?

A. It is.

Q. Exhibit J is what?

A. That is a statement of the profit and loss of the company shown from its books at the close of business for the calendar year December 31, 1910.

Q. And is explanatory of the item profit and loss on the balance sheet?

A. Yes, sir.

Q. What is Exhibit K to schedule 1?

1685 A. That is an analysis of the company's revenue accounts. It also shows the income and the cost of the appliances and fittings and merchandise handled by the company, showing the net profit or loss from each of such department-, which refers back again to the profit and loss account for the year in question. The total also shows the quantity and cost per unit of the boiler fuel used by the company, the generator fuel, oil and purification supplies.

Q. For instance, taking that, your cost per unit appears under the word "rate."

A. Yes, sir.

Q. Coal, so much a ton?

A. Yes, sir.

Q. The oil is by the gallon?

A. Yes, sir.

Q. That is something under three cents?

A. Yes, 2.8.

Q. What are the purification supplies that you get by the bushel?

A. They are all supplies the engineers describe in the purification process as shavings, corn cobs sometimes, usually the general purification material embraced in the stock account for that purpose.

Q. What is schedule 2?

A. That is a statement of the profit and loss covering 12 month-ending September 30, 1908.

Q. And what is Exhibit A to this schedule?

A. That is an analysis of the revenue which the company has received from gas sales and sundry sales. The table also shows the cost of manufacturing material and supplies, both the quantity, the unit rate and the amount for that year.

1686 Q. What is schedule 3?

A. Schedule 3 shows the statement of the profit and loss for the 12 months ending September 30, 1909.

Q. And Exhibit A to that schedule is what?

A. That contains the statement of the revenue from gas and sundry sales of the company, the cost of its manufacture, materials and supplies, showing both the quantity and the rate and the amount expended for the year.

Q. What is schedule 4?

A. Schedule 4 shows the statement of profit and loss similarly prepared for the twelve month- ending September 30, 1910.

Q. What is Exhibit A to schedule 4?

A. That shows an analysis of the revenue account of the company for the year embracing gas sales and sundry sales; also the cost of the manufactured material and supplies, showing the quantity and rate and the amount included in the operating expenses for that year.

Q. What is schedule 5?

A. It is the one I have referred to already as an adjustment of the operating expenses for these four periods, containing a debit on account of my estimate allowance for depreciation, and a credit on account of adjustments which I made, of what I considered incorrect charges to the operating expenses.

Q. It also shows the gross revenue and operating and net as shown by the books.

A. Yes, it shows the corrected net earnings.

Q. What do you mean by fixed charges?

A. They really cover interest on mortgage liabilities, interest on bonds.

Q. Now, referring generally to these schedules, 1 to 5
1687 inclusive, included in Exhibit 23, and to the exhibits to these schedules 1 to 5 inclusive, I wish you would state whether they were all made up by you or by your employés under your supervision from the books of the company and whether they correctly show the facts set out in them as shown by those books, except this matter of adjustment in the last schedule you have referred to.

Objected to on part of the defendants as incompetenr, irrelevant, immaterial and not the best evidence.

Mr. GUERNSEY: As to not being the best evidence, the situation is this: for about three weeks perhaps, the accountants for the city have been working on these same books. We have not brought the books in here, but we can bring every one of them if they want them. Under the circumstances I don't think the objection ought to be made because the books are not here, or if it is made we ought to be permitted to interrupt the work the city's accountants are doing on the books.

Mr. BYERS: The trouble, Mr. Guernsey, is in the form of your question.

Mr. BRENNAN: You ask if this correctly shows the condition of the company's books.

The MASTER: This evidence may go in and if there is any question about the books, they can be introduced hereafter.

Mr. GUERNSEY: The question is made now. I want to ask counsel whether they require us to bring them in?

Mr. BRENNAN: No, but this witness ought not to be asked if this shows correctly the condition of the company's books.

Mr. BYERS: It is the form of the question we object to.

Mr. GUERNSEY: I think I know what counsel have in mind and I will change the form of the question.

1688 Q. I am not asking you Mr. Haganagh, to state whether the books are correct, but what I want to know is whether these exhibits, and this is what I think I asked you before, correctly show the matters that are contained in them as these matters appear upon the books of the company, except only the adjustments indicated by you in schedule 5?

Objected to on part of defendants as incompetent, irrelevant and immaterial.

A. These schedules and exhibits have been prepared from the company's books in the city of Des Moines. The work was performed largely by men in my employ and under my direction. The work of preparing and writing the report was done by me personally. I personally examined all the vouchers for the year 1910, and except for such typographical errors as may have crept into it, it is a correct statement of the condition of the company's books.

At this time an adjournment was taken until 1:30 p. m.

1689 1:30 P. M., FRIDAY, *August* 6, 1911.

W. J. HAGENAH Being continued on direct examination by N. T. Guernsey, Esq., testified as follows:

Q. Mr. Hagenah, just as we adjourned I asked you to take up the matter you have discussed in this Exhibit 23 under the heading value of investment and state whether you have made a valuation of this property based upon the investment and state in detail how you made this valuation and the reasons for it?

Objected to as incompetent, irrelevant anl immaterial.

A. In financial statements and schedules described this morn' I confined myself solely to the actual cost of the gas property and these profit and loss statements as shown by the book. The cost of the plant, however, does not represent the full investment upon which the stockholder in that plant is entitled to a reasonable rate of return. He is entitled in all fairness——

Mr. BRENNAN: To avoid interruption here by objections I would like to have the record show that in all cases where the witness endeavors to decide what is a reasonable return for the investor that testimony is objected to as being incompetent and a subject upon which the witness has no right to volunteer or express an opinion.

COURT: That will apply to each and every question and answer and each and every part of the answer without being repeated.

Mr. GUERNSEY: No objection to that.

A. It is my belief that the investor is entitled to a reasonable rate of return not only upon his voluntary investment or the
1690 actual money which he has expended in the physical plant but that he is entitled also to a rate of return upon the in-

voluntary investment which he has named and an audit of the *the* company's books will show only the actual cost on the company books. In order to find the value of the property or rather the investment which the stockholder possesses and upon which he is entitled to a rate of return it is necessary to go farther than the mere cost of the plant and to consider all the elements of value. These elements embrace the reproduction cost of the property new, the reproduction cost new of the property less this depreciation to show its present value. The cost of the plant in dollars and cents to the stockholder as he has actually built it up from year to year through expenditures and additions to the plant. The stock and bond account of the company and also its gross earnings and net earnings. There is no mathematical rule, there is not one single principle by which the value of any property for rate making purposes can be computed. It must be determined from the consideration of all these elements of value giving proper weight by one whose judgment is as such reinforced by experience as to give it value. In order to determine therefore what the value of this plant for rate making purposes should be I have gone further than the mere analysis of the book accounts which I stated this morning and as contained in this report to be roughly $1,928,000. I say that the investor is entitled to a return over and above that amount because of the involuntary investment which he has made. The amount shown on the books of this company is merely the value of so much dead material, steel, brick, apparatus for manufacturing gas and
1691 the labor element which have gone into it. It contains no item of expense *wo* represent the value of the company as an actual live operating going and revenue producing corporation. Such a corporation, such a property, or the investment representing that property is the amount which in a rate case should be used as the basis for applying the reasonable rate of return. Now plants, referring to public utilities companies, seldom produce a profit from the first year of their operation. In common law and under all our rate regulating statutes in this country a public service corporation stands in an entirely different light than a private corporation. As a public service corporation it is entitled to charge only such rates as will yield a reasonable rate of return upon the investment. Without considering now what that reasonable rate is the stockholder or the investor in a public utility company can never charge more than what constitutes a reasonable rate. If he does not secure that reasonable rate of return upon his investment he is incurring losses which must be met by someone and in this particular instance of the public service utility owned by individuals these losses fall upon the stockholder. A public utilities industry and its business is developed at considerable hazard and through the expenditure of large sums of money. That money must go for example in paying cost of advertising soliciting, demonstrating the cost of introducing the public to the values and benefits of its service. It goes to the depreciation of the plant. If now a rate of return or the price of gas which the company is charging is not large enough to meet

the necessary operating expenses together with depreciation, there is incurred in the operation of that plant a deficit and a
1692 definite loss which must be assumed and borne by the stockholder. If one should engage in a private business he would be enabled in later years to recoup these losses which he incurred in the early years. Since, however, he cannot when in this industry charge a higher rate than one which will yield a reasonable rate of return these losses which are incurred in standing by the utility business during these periods of deficits should be considered as a part of the investment. In a private business a man may retire from the business the moment he finds to his satisfaction that his investment is not profitable and may remove from the city entirely and engage his enterprise in some other city. In the utility business the moment his investment is made it is fixed and there is no choice on the part of the investor. He must stand by his utility furnishing public service even at a loss until such time when he fails or leaves the field entirely or remains only in the hope that some day the public will appreciate the service and use it to the extent of giving him that reasonable rate of return to which he is entitled in law. If for example a man has made an investment in his plant of $1,000,000 and finds that during the five or ten years of his operation he loses five thousand or ten thousand per year, the amount of his investment upon which he should be entitled to a reasonable rate of return should not be the mere physical value of his property but that value plus the amount of loss which he has sustained. If these losses are not considered as part of the investment then the application of what constitutes a reasonable rate to the investment will not yield that reasonable rate becauuse the actual in-
1693 vestment is larger than the investment upon which the rate of return is computed. If therefore the investment shown by the books is one million dollars and the accummulated losses are $200,000, the application of the specific rate to the one million dollars would not yield the reasonable rate to which the investor is entitled by law but will give him a rate considerably less per cent and therefore the accummulated losses must be considered as a part of the investment and the rate of return computed upon the investment so increased or else the amount which is deemed a reasonable rate should be increased to the extent that during the years of prosperity the stockholder will have returned to him these amounts which he has originally expended in standing by his plant during the period of development. Since a public utility——

COURT: This is an argument rather than evidence.

A. I merely want to outline this for the table I built upon these elemtents of value as shown on the company's books.

COURT: Yes, but it is argument just the same.

Mr. GUERNSEY: We thought it was not improper to have the witness state the reasons which impelled the Wisconsin commission to adopt their system.

A. It is this explanation or argument or logic whatever you want to call it which led the Wisconsin Commission to adopt a basis for

computing going value entirely different from what had ordinarily been used before that time. We build our going value table therefore from an analysis of the company's accounts and analysis of the losses during the period of development on the theory that these losses represent the amount which must be added to the physical value in order to determine the fair amount which in a rate
1694 case must be considered as the actual and reasonable investment. This theory of the Wisconsin commission differs from the other elements of going value which have been discussed in that a plant may have a large going value but it does not necessarily follow that the value must be allowed in a rate case. That is the distinguishing feature between this and other methods of computing going value. And carrying my statement a little farther if a company in later years after its plant has been formally established is earning more than a reasonable rate of return the excess in such earnings over and above a reasonable return that would apply to wiping out the going value which had accummulated during the years of the company's unprofitable operation. If then a company lost money for ten years and was very profitable for ten years, it is entirely possible and in many utilities it is a fact that for rate making purposes the element of going value which at one time was actual has been entirely wiped out since it has been earning extra profits which the stockholder has received during the period of prosperity and a portion of the losses have been recouped and he has received from and on account of his investment the amount which is deemed a reasonable rate of return on his investment. On that theory I have prepared a table——

COURT: What page is it on?

Mr. GUERNSEY: The fourth page from the end, page 42.

A. In order then to determine not whether the company has a going value, but whether the element of going value should be considered in this rate case, I have prepared the tables in this report. The table covers the years from 1887 to 1910. That is a table where depreciation is computed at two and one half per cent, the
1695 first of these last two tables. Going back to the beginning of 1887 the company's books show an investment which according to Exhibit "B" of schedule 1 of my report amounts to $285,383. I consider that which is the actual cost as the investment of the company at that time. The investment consists not only of the physical property but an amount to be considered as reasonable working capital at that time and that amount from an analysis of the company's balance sheet I place at $13,600 as I recall which is the working capital at the beginning of 1887. My second assumption for this table is that reasonable rate of return for the Des Moines Gas Company is 8 per cent. Eight per cent on this investment for the year 1887 would yield $24,719. During that year the company added to its investment $18,394. Since this investment is as well entitled to the return as that which was put in at earlier periods and since the construction was being carried on throughout the year I have applied that rate of eight per cent for only six months.

That gives an interest on the construction for the year during the period when we can assume it was in service in the amount of $736. Their operating expenses that same year as shown by the company's books amounted to $51,753. I have assumed for the purpose of this table that the depreciation of the company's property was at the rate of two and one half per cent on the depreciable property. This would amount to the application of the rate of two and one half per cent to the investment less land and working capital, making then for depreciation $7,497. Now the question arises how much during this year did the stockholder put into the business and then how much did he take out of the business. If he put into the business more than he took out that year he sustained a loss for the
1696 time being. If he took out more over and above his expenses than 8 per cent certainly no going value for *are paming* purposes occurred during that time. To prove this I add in the next column all the preceding figures to determine what total amount the investor up *ro* this time has put into the business which *es* $412,082. Through the operation of the plant that year he took out the business in the form of gross earnings, $78,793 leaving the value of his investment on the 8 per cent basis at the end of the year $333,289. That is the condition of his investment at the end of that year and consequently the next day which is the opening*ing* of the new year. During that year he is entitled to 8 per cent. He added to his plant in the form of physical property and he added to his working capital. The investor is entitled to the 8 per cent for six months upon such addition. His operating expenses are shown in the next column. Likewise the depreciation. Then I again add the total amount which the investor put into the property during that year and subtract the amount which he took out of the property showing that the investment at the end of 1888 was $381,821 this amount representing his then physical property plus the condition of his loss or profits as computed on the 8 per cent basis. The amount at the close of this year is again carried forward for the beginning of the next year and this process I have carried on from year to year for *for* every year during the time the accounts of the company can be obtained giving me a total investment value on January 1, 1911 of $3,343,394. In this table I have assumed that 8 per cent was the reasonable rate of return on investments of this Character and in this particular instance that the depreciation allowance should be two and one half per cent of the depre-
1697 ciable property. These two items are largely a matter of judgment. In order to arrive at any figure which I would want to use as the basis of valuation in a rate case I would want to compute the going value upon different basis*es* or assumptions. So I have prepared another table allowing again 8 per cent as the reasonable rate of return and assumed that *the* depreciation during these years had been at the rate of two and three fourths per cent on the physical property. This table is compiled on exactly the same basis as the one described but gives a somewhat higher valuation of $3,484,586.

Q. Have you also since you made this report and after a further study of the situation compiled a final computation?

A. I have.

Q. That I believe is being type written now?

A. Yes, sir. This report and these returns which I have just described were prepared and submitted on March 8th. After I arrived in the city and familiarized myself to a greater degree with the records of the company I came to the conclusion that the amount which I had assumed as a fair allowance for depreciation was probably high and that in the interest of the consumer and subscriber for gas service a somewhat lower rate for depreciation should be used in all justice to the public and I think that the two and three fourths per cent which I used giving a valuation of $3,484,586 is too high. I worked the table over again on an 8 per cent earning basis, however, but placing the depreciation at two and one fourth per cent instead of two and one half per cent. Now that table has just been completed and is being typewritten and I have no*y* a copy of
1698 it here but the amount shown to be the fair investment value at this time and upon which I would apply the 8 per cent is $3,240,000. I made a further analysis assuming without knowing definitely because I did not have the necessary engineering valuation data when I made these tables that my two and one fourth per cent for depreciation was still too high and I worked the table out again on a two per cent allowance for depreciation which appeared to me as being a reasonable and conservative allowance. On that basis of computation my final valuation is $3,136,241. To say definitely what I would consider the fair value of this property for rate making purposes would be a process of analysis, would require a process of analysis in which I would examine these tables and the reproduction new of the property, cost as shown on the company's ledger, its earnings, all its financial exhibits and I would certainly have to come to the conclusion that the amount upon which the rate of return which should be allowed for the benefit of the stockholders on January 1, 1911, was, the very minimum from all these analyses roughly three million dollars. My tables here, the one which I think most conservative, that of 8 per cent for the rate of return and two per cent on the depreciable property to reimburse or replace property through wear and tear or general depreciation, is $3,136,241.

Q. I wish you would state again whether the method you have adopted here is the method which is adopted by the Wisconsin commission in making its valuations where these data are available.

Objected to as incompetent, irrelevant, immaterial and calling for a conclusion of the witness.

A. In our early rate cases there we were confronted by a maize of——

1699 COURT: That don't answer the question.

A. This method was used in the case of Hill vs. Anigo Water Company and appears in the printed decisions of the Wisconsin Commission. That is the first time that method was used. It was used again in the Marinette and Menominee Light & Traction case. Further used in the case of the state journal prin*gint* Co.,

against Madison Gas & Electric Company and in all rate cases since that time we have worked outgoing value upon this basis as an element to determine the value to be considered for arriving at what is a fair value upon which rate of return should be computed.

Q. Recurring to something you mentioned this morning, $1,928,016.65, which you referred to as cost as shown by the books, I wish you would state whether that includes what we have denominated overhead charges.

A. There is no evidence on the books showing that it does. It is possible that the amount——

Defendant moves to strike out the answer and I think this witness ought to be cautioned and informed he is simply here to answer questions and to testify.

Mr. GUERNSEY: I think you were answering my question.

A. I could only answer there is nothing on the books showing that overhead charges had been included in the construction account.

Q. You made this estimate from the books?

A. Yes, sir.

Q. You have no personal knowledge of these transactions back there in 1886, 1888 and 1890 and so on.

A. No, sir; they are just copies from the ledger and the details which go to make up the total as shown on the ledger do not show any charges for the indirect expenses for construction pur-
1700 poses.

Q. Now I asked you this morning something about whether the so called overhead charges were allowed by the New York Commission in construction account for gas companies. I wish you would look at the book that I now hand you and state whether or not this is the book prescribing the method in which the account of gas companies are to be kept as shown by the order of the commission there in the second district which is in the first part of the book.

A. Yes, I recognize it as a copy of the classification of accounts prescribed by the second district commission of New York state that is the public service commission.

Q. I wish you would look at the bottom of page 15 here and read into the record such requirements as you find there with reference to these so called overhead charges during construction and how they are to be taken care of. I have the right place have I.

Objected to as incompetent, irrelevant, immaterial.

A. On page 15 of this classification of accounts appear the instructions for charging to the construction account expenditures incurred during construction, for engineering and superintendents, law expenditures, injuries during construction, taxes during construction and miscellaneous construction expenditures which embrace such items as the general office, clerical salaries and insurance and items of that general nature during construction.

Q. And on the top of page 17 what have we?

A. On the top of page 17 is the item of interest during construction also chargeable to this account.

Defendant moves to strike from the record the matter just
1701 read therein for the reason the same is incompetent, irrelevant and immaterial.

Q. Have you also before you a copy of the classification of the Wisconsin Commission relating to the accounts of such companies?
A. I have.
Q. Is that the classification which you referred to this morning which was prepared by you?
A. Yes, sir.
Q. As we do not intend to put it in the record, about how many pages has it?
A. It embraces the classification for I should say roughly between five and six hundred pages.
Q. And what is the size of the book?

Objected to as irrelevant and immaterial.

A. I don't remember the dimensions, it is probably four by seven inches.
Q. A bound book?
A. Yes, sir.
Q. Counsel for the city asks me to ask you whether it is bound in leather. Please state whether this copy is so bound?
A. This copy is, but the commission do not bind them in leather for general distribution.
Q. Now will you please turn in that classification to the requirements of the Wisconsin Commission as to these overhead charges and state what are these overhead charges they recognize as part of the capital account.

Objected to as incompetent, irrelevant and immaterial.

A. On page 79 of the classification prescribed for gas utilities and on the several succeeding pages are instructions to charge to the construction account such items as salaries during construc-
1702 tion, office supplies and expenses during construction, stationary and printing during construction, law expenses during construction injuries and damages during construction, insurance during construction, taxes during construction, interest during construction, miscellaneous during construction and a discussion of the subject of treatment of discounts on bonds issued for construction purposes.
Q. Is engineering specially mentioned?
A. It is not specifically mentioned in any accounting here. It is covered by instructions to charge engineering and superin*rents* during the construction to the construction account. It is not the subject of an account title.
Q. I will ask you to state Mr. Hagenah whether this paper marked complainant's Exhibit 24 shows as the same appear upon the books of the company the revenue and the operating expenditures of the complainant the Des Moines Gas Company for and including the

first two months of 1906 when the property was owned by the Capital City Gas Light Company and then for the twelve months ending February 28, 1907, the twelve months ending February 29, 1908, the twelve months ending February 28, 1909, the ten months ending December 31, 1909, and the twelve months ending December 31, 1910.

A. It does.

Q. And does it also show the various items per thousand cubic feet of the operating expenses?

A. It does.

Q. I wish you would state whether you have yourself since you have been here checked this Exhibit 24 with the books of the company and whether or not it is correct as shown by these books?

1703 A. I have checked this against the company's books every item of revenue or expense except one single item in the first column amounting to $32.40 I did not check because the book in which that was happened to be in use at the time and I have not had access to it since then, but just that one item $32.40. Excepting that I have verified every other figure on the statement.

Q. And what is the fact as to whether this exhibit 24 is correct, that is whether it correctly shows the facts which it purports to show as they appear upon the books of the complainant and for the first two months on the books of its predecessor.

A. It correctly shows the revenue and operating expenses in detail for the period shown on this table with the additional addition to show the operating costs and revenue per thousand cubic feet.

Cross-examination by R. O. BRENNAN, Esq.:

Q. Now Mr. Hagenah, I understand you to say that you are an expert statistician?

A. Yes, sir.

Q. You are not a consulting engineer?

A. No, sir.

Q. Don't pretend to be?

A. No, sir.

Q. You have attempted to tell the Master the various methods pursued by regulatory bodies in arriving at the valuation of gas plants and water plants?

1704 A. I have indicated simply the method which we had adopted for Wisconsin and the various methods which we considered in arriving at such valuation.

Q. Also methods pursued to some extent at least by the commission in New York State.

A. In so far as their accounting classification goes which they have used there for rate cases, but I don't know their position.

Q. As I understand you you were employed by the commission in Wisconsin to classify and suggest methods for keeping accounts for public utilities within that state?

A. Yes, sir; and further than that I was made chief statistician of the department and that was one of my duties, my first duty in connection with the organization of the department.

Q. What other duties did you perform in the organization of the department in that respect?

A. Examined all the reports made to the commission by all public service corporations of Wisconsin.

Q. Those were checked over by you to ascertain whether they had been filed in accordance with the rules of the commission.

A. And the accounts had been kept as prescribed by the commission.

Q. Did you go over the books of the respective companies to ascertain whether they were correct, is that part of your duty?

A. In many instances if the report showed any error which we could not correct through correspondence or showed great discrepancy, or an effort to avoid classification I would go to the office of the company and verify the report or prepare a new one.

Q. You got a leave of absence when?

A. July 1, 1910, which has been extended on two occasions since then.

1705 Q. When did you take up your work for Chicago?

A. I went to Chicago the first time in connection with my work there I think on the 26th of June 1910 to make a preliminary survey of the situation.

Q. And when did you first come to Des Moines in connection with this case.

A. February 18, 1911.

Q. Had you been in Des Moines prior to that date?

A. No, sir; my first visit to the city.

Q. Did you come to Des Moines in pursuance to some correspondence?

A. Yes, sir.

Q. Or by telephone message?

A. Correspondence.

Q. Who corresponded with you with reference to your coming to Des Moines?

A. I received a letter—I presume you want the first letter?

Q. Yes.

A. The first letter I received in regard to the Des Moines work was received about the 24th or 25th of January, it was written to me by Mr. G. W. Curran of Philadelphia.

Q. Mr. Curran is an officer of the——

A. Comptroller of the United Gas Improvement Company.

Q. And that was the first communication you had received with reference to the Des Moines case from that source?

A. Yes, sir.

Q. Was that in relation to your employment in Des Moines in connection with this case?

A. As I recall that letter Mr. Curran wanted to know what my work was at that time and if I would be available to pass upon some questions which he might want to submit to me involving the

1706 question of classification. He stated I believe in that letter that the company with which he was connected was interested in the Des Moines Gas Co., and that there was some difference in regard to the rates in the city and what he would want me to pass

upon was the question of the classification of accounts which the company was keeping.

Q. He told you in that letter that the inquiry involved the question of rates?

A. I recall it so, at least I understood that was what the difficulty was over.

Q. And that was the only information that you had on that subject is what you received from Mr. Curran, wasn't it?

A. At that time, yes.

Q. That was in January 1911?

A. Yes sir.

Q. About the 24th I think you said?

A. I think the letter was posted in Philadelphia the 24th of January, I probably got it the 25th or may be the 26th.

Q. You were in Chicago at that time were you?

A. Yes, sir.

Q. From whom did you receive the letter asking you to come to Des Moines in February?

A. I think from Mr. Curran. If I might explain in answer to Mr. Curran, if that is material——

Q. It might be later on, but I wanted to know now——

A. I told Mr. Curren, in my reply that I thought I could pass upon the matter that he had in mind but no specific arrangement was made at that time. I received a letter later asking me if I could come to Des Moines with him for the purpose of look-
1707 ing at their classification.

Q. About what was the date of that letter?

A. I don't remember, but it must have been, that would be just assumption, possibly eight or ten days after the first one.

Q. You referred to the first letters about the 25th of January?

A. Yes, sir.

Q. I presume you answered that by return mail?

A. Probably answered it the same day, I think so.

Q. Then you got another letter in due course of mail from Mr. Curran?

A. Yes, sir.

Q. In which he asked you if you would be in position to go to Des Moines with him?

A. Yes, sir.

Q. Well from this it was about the early part of February you came out here?

A. No, I came on the 18th of February.

Q. Did you meet anyone else connected with the United Gas Improvement Company besides Mr. Curran?

A. Mr. Curran was bound for Des Moines at that time and I met him in Chicago on the night of the 17th, he was accompanied by a young man from his office in Philadelphia and I went with them to Des Moines leaving Chicago on the night of the 17th.

Q. Upon your arrival in Des Moines on the 18th how long did you remain?

A. I went back to Chicago Sunday night on the 19th being here two days.

Q. When did you next return to Des Moines?
A. I came out here again on the 26th and stayed here one day.
Q. 26th of February?
A. Yes, 26th of February spending Sunday in Des Moines.
1708 Q. Leaving Sunday night for Chicago?
A. Yes I want back to Chicago Sunday night.
Q. When did you next return to Des Moines?
A. March 5th, I was here one day.
Q. On Sunday.
A. Sunday.
Q. You left Sunday night again for Chicago.
A. Yes, sir.
Q. When did you next come out to Des Moines?
A. I think I came here the next time the day this trial opened, I think that was the 12th of July.
Q. How many assistants did you say you had from your office employed here in the gas office?
A. I had one man here in Des Moines who was here five days, my chief accountant.
Q. What was his name?
A. Charles A. Honecker.
Q. He was here five days?
A. Yes, sir.
Q. During what part of the year 1911?
—. Mr. Honecker left Chicago on the night of February 28th and left Des Moines going back to Chicago on the night of March 5th. That is the same night I went back to Chicago. We went back together.
Q. Was he out here after that?
A. No, sir.
Q. Was anyone representing your office out to Des Moines?
A. No, sir.
Q. Mr. Honecker spent five days in Des Moines?
A. Yes, sir.
1709 Q. Of which time you were here one day?
A. During these five days yes I was here Sunday.
Q. He went with you back to Chicago Sunday night?
A. Yes, sir.
Q. Is your contract of employment from the United Gas Improvement Company?
A. No, sir; from the Des Moines Gas Company. I have no contract if by that you mean a statement in writing.
Q. No, I don't mean a written contract, I meant Mr. Curran on behalf of the United Gas Improvement Company requested you to come out to Des Moines?
A. Yes, as comptroller of the United Gas Improvement Company which owned this property.
Q. I am not asking you now what your contract was as to the amount but did you arrange with Mr. Curran, the amount of compensation which you were to receive for your services in this case?
A. No, sir; not at that time.
Q. Did you afterwards?

A. Not until about five or six days ago I think it was.

Q. Made your arrangements with whom at that time?

A. Mr. Curran spoke to me about it, asked me if I had rendered a bill and I said I had not. Later Mr. Haines requested me to file my bill since the matter had been pending so long and they wanted to have mine closed for the time being.

Q. They made settlement with you for the amount of services?

A. Yes, I rendered my bill and received a check for it.

Q. Just a few days ago was it?

A. Not over three days ago.

1710 Q. You say you were employed by the city of Chicago.

A. Yes, sir.

Q. In connection with some investigations down there?

A. Yes, sir.

Q. Were you employed by the city council of Chicago?

A. No, sir; by the committee on gas oil and electric light which has a membership of about twelve or thirteen aldermen, and this investigation was referred to a sub-committee of three with whom I dealt occasionally but my principal relations were with the chairman of the sub-committee.

Q. You were employed through this sub-committee of the city council.

A. Yes, my negotiations were entirely with the chairman of the sub-committee.

Q. What were you employed to do in Chicago?

A. To make an appraisal of the property of the Chicago Telephone Company and the People's Gas Light & Coke Company to make an audit of all their books, records and accounts, make an investigation of matters which I deemed material to the question of rates and to prepare from such material what I believe was a reasonable and proper schedule of rates for the service in question.

Q. And you were to make an appraisement of the property as well?

A. Yes, that did not necessarily mean, however, I was to do that myself. I was given authority to build up a staff for all this work but I was to supervise it.

Q. You are not familiar with nor pretend to be familiar with unit values that go into construction of a gas plant or water plant or other public utilities are you?

A. I am not an engineer, but in my work on the Wisconsin

1711 Commission on rate cases I have figures which refer to the making of many appraisals and the analysis of public service corporations and I am in a way familiar with it although not an engineer.

Q. You did not expect yourself to make this appraisal in Chicago so far as physical property was concerned?

A. Oh no. Just direct the methods which were to be pursued on the properties to be valued.

Q. And employed engineers for that purpose?

A. Yes, but I had a wide discretion in arriving at what should be the elements of value in each case and how it should be compiled.

Q. I believe something has been said in this case about a meeting of engineers or some of them or their counsel at the Blackstone Hotel in Chicago. Were you present at any of those meetings?

A. I was present at one meeting at the Blackstone.

Q. At what meeting were you present?

A. I am really not familiar with the transaction there, I did*n* nit know until I heard some testimony here that there had been several meetings. I attended one which was on Sunday February 12th I went to the meeting about noon time and I learned then that there had been a meeting before that time, I stayed to dinner with a number of men connected with the gas question in Des Moines and spent the afternoon with them. That is the only time I ever met any people in connection with this case in Chicago.

Q. Was that before you filed your report in this case which you read this morning?

A. Yes, this report I filed here is dated March 8th. I met
1712 there February 12th.

Q. That was also before you filed your report with the city council in Chicago or with this committee?

A. Yes, my gas report there was filed I think April 17th which was the day after Easter and the telephone report was filed I believe May 2d. So it was before all these reports were filed.

Q. What was the general nature of the discussions that were had at this meeting at the Blackstone Hotel?

A. I did not participate in any general discussion or general meeting. My part in the conference was to discuss with the members present but not all the members of the conference were in the room at the time, this method of going value which I explained to the court here today.

Q. That was discussed there was it?

A. Yes, I outlined what we call the Wisconsin Commission Method.

Q. Did any other engineer outline for the benefit of those present his personal views with respect to some method?

A. As I recall it there were in the room at the time I explained my method no other engineers except Mr. Randolph was there. I met other men there but they were not in the room at the time I explained my method.

Q. Mr. Baehr nor Mr. Lea were not?

A. They were not in the room, they were there, but were not in the room when I discussed my method.

Q. Were they about the hotel?

A. Yes sir. I met them before dinner and I believe they were at the dinner table with us.

Q. Did you meet Mr. Alvord at the hotel in Chicago?

A. No, sir.

1713 Q. In connection with any of these conferences?

A. Not at Chicago.

Q. Did you talk with him at any other place in reference to this case and theory which you were going to evolve or outline for the benefit of the Master in this case?

A. No, sir.

Complainants object to the question because it assumes the witness is going to evolve a theory for the benefit of this case which is not in accordance with the facts.

A. No, sir. I met Mr. Alvord only once, was merely introduced to him and never have discussed the question of values with him.

Q. Did you submit to the people of Chicago in your report the same theory of going value in that case that you have in this?

A. I did in the gas case.

COURT: I have heard Mr. Alvord's name repeated two or three times here. Who is Mr. Alvord?

Mr. GUERNSEY: He is a water works engineer who lives in Chicago.

COURT: I could not understand what *was* the reference was to Mr. Alvord is the reason I asked the question.

Q. Mr. Walvord you know is the same man who was out here in the water works case in Des Moines?

A. I met him in Des Moines, I was introduced to him in the hotel here, I was in his presence not over two or three minutes I am sure.

Q. You met him here in Des Moines?

A. Was introduced to him here.

Q. When was that?

A. I don't remember the date, it was one Sunday.

1714 Q. One of those visits you were here in Des Moines?

A. Yes, one Sunday.

Q. That was your first meeting with Mr. Alvord?

A. And the only meeting with Mr. Alvord, yes.

Q. Now you think you advanced the same theory for going value in your report to the city council of the city of Chicago?

A. Yes, sir.

Q. In the gas case?

A. Yes, sir.

Q. Now in that case you understood to recoup the company for the early losses which it incurred in getting rid of competition and for the moneys which were expended on behalf of the company ostensibly for the purpose of securing franchises.

A. No, I have not allowed in that amount which I assumed as going value in Chicago any allowance for franchise value.

Q. But didn't you conclude from your investigations that the stockholders of the Peoples Gas Light Company when they formed their reorganization and got rid of certain competition and secured certain franchises that there had been expended in that behalf some twenty or thirty millions of dollars but that as a matter of fact but about ten millions of that went outside of the company and that therefore you concluded that about ten millions would be fair and just to be considered in connection with the going value, isn't that true?

A. Not exactly. I think you have put certain elements into your question which I eliminated in my analysis of that account on the Chicago Gas Company's books. You have some of the elements in there.

Q. You did recommend the allowance of ten million dollars as going value did you not in your report?

1715 A. Approximately that amount, I don't remember the exact figure.

Q. In what manner did you arrive at that ten millions in that case?

A. The Peoples Gas Light and Coke Company, do you want me to go back through the——

Q. I would like to have you tell just in a general way by what method you arrived at ten millions as representing the going value?

A. The Peoples Gas Light and Coke Company of Chicago as at present constituted is the consolidation of a large number of gas companies which prior to 1897 had been engaged in bitter rate wars. It had been the policy of the council of Chicago during a great many years following 1855 to issue franchises for gas companies for the purpose of inciting and inducing competition. As soon as any single company seemed to be making money or at any rate some member of the council believed that they were making money, some people in Chicago thought it would be the proper method and policy to pursue to enfranchise another gas company. The result was that as soon as any gas company became comfortably established on its feet it was forced into competition with another company. The second company would enter the same field construc- a plant, to satisfy the same district, lay mains in the same streets, which were already supplied with mains and engage in a competitive struggle to master the gas business in that particular district. My theory is that a public service corporation having a franchise for the purpose of supplying the public with a public service should be given that franchise with the least possible restriction and with the least possible obstruction in its operation. Since the company can-

1716 not avoid engaging in a rate struggle and since to compel it to engage *it* in such struggle is contrary to all reason and political economy——

Q. I think you are getting far outside of the scope of the question. I want to know this, in making your valuation for the city of Chicago of the property of the Peoples Gas Light and Coke Company if you allowed in connection with the valuation anything which represented expenditures made by that company or its predecessor on account of moneys expended in securing franchises or whether you eliminated that feature entirely from your report?

A. Tried to eliminate that feature entirely from my report in so far as I was able I did.

Q. Did you allow anything in the sum for franchise?

A. I made an effort to exclude that wherever I could determine it on the books.

Q. But you allow do you not something for it?

A. Not intentionally or not knowingly. I made a special effort to eliminate it.

Q. Isn't it a fact in your report ten million approximately you allowed as going value represented items of that character?

A. I did not.

Q. Are you still serving the city of Chicago in connection with their investigation of litigation which has grown out of your report?

A. I left the service of the city of Chicago on July 8th.

Q. 1911?

A. Yes, sir.

Q. And since that date a suit has been commenced by the Peoples Gas Light Company against the city of Chicago?

1717 A. I noticed that in the newspapers.

Q. Did you get any other information from any other source?

A. No, sir.

Q. Except the newspapers?

A. That is the only information I had on it.

Q. I believe you said that in Wisconsin they attempted to arrive as nearly as possible at the actual cost of the utility in fixing rates.

A. When you say actual cost do you mean cost of operation or investment cost?

Q. I mean the actual investment?

A. We try to arrive at that to use it as one of the elements in arriving at the value upon which the rate shall be applied.

Q. In other words you endeavor to know just what amount has been invested in the property from its inception and installation up to the time of the inquiry with respect to the rates.

A. Yes, we try to analyze the construction plant.

Q. And try to know what the actual investment is don't you, the amount of money actually put into the plant?

A. We want to get at that yes.

Q. You want to know what their buildings cost don't you?

A. Yes, sir.

Q. And what their holders or other apparatus cost?

A. Yes, sir.

Q. You want to know the actual cost of the distribution system?

A. Yes, sir.

Q. Every part of the plant?

A. Yes, sir.

Q. In this report that you make Exhibit 23, you have found a valuation of this property of something over three millions

1718 of dollars approximately three millions as I understand it?

A. I would call that the value of the investment, not the value of the plant, just a little distinction of the term.

Q. You make a distinction between the value of the investment and value of the plant?

A. Yes, the plant I would call the physical property and the value of the investment the amount upon which 8 per cent ought to be applied which would be the physical property plus any other allowance which might be found necessary?

Q. You did attempt to ascertain what the actual investment was in the city of Des Moines?

A. Of this company, yes.

Q. And your figured go back to the year 1887 do they not?

A. My figures or analysis of the construction account goes one year earlier than that June 30th, 1886.

Q. You have used some figures commencing at that date and I wish you would tell us from what source you received that information, that is to say the amount which you used in this report as representing the investment of the company in 1886.

A. That is taken from the company's books, the ledger.

Q. You have no way of verifying that except that you adopt these figures from the books?

A. The first figure of course I would have to adopt, I had nothing prior to that or any means of ascertaining it.

Q. Now in your summaries the way you have worked out this valuation I will ask you if you have considered in connection with the valuation of the investment anything for mains below pavement?

A. Only to this extent where the main was laid by cutting through pavement and the pavement restored the cost of such restoration appears in the records of the company and that amount only
1719 is included in the construction account.

Q. So that you arrived at the value of the investment of three million dollars without considering the item at all of mains under pavements?

A. Only in so far as the books show that the company has actually cut through pavement and restored pavement.

Q. That is to say if a main or service has been constructed in advance of the pavement or at a time when a street was being repaved you make no allowance for that?

A. Not unless the company incurred any cost in connection with it in which event it is on the books and this table embraces no items not on the company's books.

Q. I wish you would tell me if you will, on December 31, 1910, what the actual amount invested by the company was as of that date?

A. $1,928,016.65.

Q. Now can you tell from your report the amount of gas that was sold by the company up to that time?

A. In cubic feet?

Q. Yes.

A. No, sir.

Q. Haven't you got it summarized there each year?

A. The gas sales each year.

Q. Yes, that is shown in your report is it not?

A. No, sir.

Q. Is there any way by which you can refer to this Exhibit 23 and tell us the amount of gas sold by the company up to the 21st day of December 1910?

A. No, I could not. There is no information that is accurate on that subject in this report. I have not analyzed the sale
1720 statement to determine the volume of gas sales.

Q. Do you know what the receipts of the company were up to that date from all sources, the gross receipts?

A. I have in my totals the gross earnings of the company for the years 1887 to 1910 inclusive but it is not totaled. Shows it for each year.

Q. Do the books and records which you examined show the receipts for the years preceding 1887?

A. My recollection is that the company has no books prior to 1887.

Q. They have no books?

A. No, sir.

Q. Showing any transactions prior to the year 1887, is that your understanding?

A. No, sir; I inquired for them, but have been unable to secure any records prior to that date. The company then was very small and I presume the same practice prevailed, they became lost. I at any rate have seen no records prior to that.

Q. Did you ask for any records prior to that date?

A. Yes, I wanted to get this back to the date of incorporation if possible.

Q. When was the incorporation do you remember?

A. I don't know when the orifinal company was incorporated, the Des Moines Gas Company I think——

Q. That was in 1906?

A. Yes, sir.

Q. The Capital City Gas Light Company, do you know when it was incorporated?

A. No, sir; I do not.

Q. Can you tell us from your report what the total revenue received by the company from the year 1887 to December 31, 1910 was?

1721 A. I have the column of figures here, there is no total to them. It is not added but the data is here.

Q. Do you have it in years as shown by your report?

A. Yes, 1887 to 1910.

Q. You have shown here the last column of page 42 Exhibit 23, the value of plant at the close of the year?

A. Yes, sir.

Q. Does that have anything to do with the income from sales of gas?

A. Yes, it is computed in this way as I have explained, consider each year what the stockholder put into the business and what he took out and determine loss and profits for that year and make adjustments, used this cumulative progressive analysis and gives the financial transaction from the period of 1887 to 1910.

COURT: That means upon 8 per cent interest upon the investment including depreciation from the time you begin until you close.

A. Yes, at per cent on the losses which are shown by considering depreciation as operating expenses during this year and they do not actually set aside anything to deprecation, reduced by applying profits which the company make during the same time showing a net deficit accumulating plus physical property equal to the amount at the bottom of the last column.

COURT: And that has tripled as I understand in about 22 years 'nasn't it?

A. Well during that time of course the plant has grown, the valuation has increased from $308,000 to $1,928,000 the books cost has increased that much.

COURT: That is three times the actual investment, three times the actual money put in?

1722 A. No, not quite twice. The actual money put in is $1,928,000, the construction account is $1,928,000.

Q. As I understand this table at page 42 you have shown for instance for the twelve months ending June 30, 1887, in the first column the value of the plant at the beginning of the year $308,383.

A. That is 983.

Q. Does that represent the actual investment up to that point?

A. The actual investment in plant plus the amount of working capital shown by the balance sheet on that day which as I recall it was $13,600. I may be wrong, may be one or two hundred dollars difference but it was 13,000.

Q. That includes the working capital outside of actual plant at that time and represents working investment?

A. Yes, sir.

Q. The next column you have 8 per cent of the value of the plant. That is to show to the credit of the stockholder 8 per cent of that amount?

A. Yes, sir.

Q. In the next column you show the additions to the plant?

A. Yes, sir.

Q. Including the working capital?

A. Includin*d* additions to the working capital during that year. that is the average addition.

Q. Then in the next column you show 8 per cent on additions to plant including working capital for six months.

A. Yes, sir.

Q. And the next purports to show the operating expenses for that year.

—. ——.

Q. The operating expenses of $51,755 that I take it you secured from the books of the company?

1723 A. Yes, sir.

Q. You made no *ettort* to check that over to ascertain if that amount was correct?

A. No, I didn't go over the individual vouchers. That is the total operating expenses from the closing of the books.

Q. The depreciation was two and one half per cent on depreciable property that you have incorporated into this report to carry out your theory, that you did not get from the books did you?

A. No, that is in this report on the statement of the details of plant, investment, schedule 1 Exhibit B and in order to find the depreciable property that year I deducted from the total that appears in this page the amount which does not depreciate which is the land.

Q. If I understand you right the company in 1887 did not take off anything for depreciation.

A. No, sir.

Q. Kept no depreciation account in other words?

A. No charge for it.

Q. You have stated that in your report by including it in this report?

A. Yes, sir.

Q. Now the column under the heading total, does that represent the sum total of all these other columns preceding?

A. That is the total of the foregoing six columns.

Q. You have gross earnings in the next column, $78,793.

A. Yes, sir.

Q. What information did you receive to lead you to believe that amount was correct?

A. That is taken from the ledger at that time and is checked against the ledger to verify its accuracy.

1724 Q. There were no vouchers or anything to show that amount was correct?

A. No, I did not go over any subscribers' ledgers to verify the total.

Q. They have no books prior to that time?

A. Not prior to that time but they had for that year.

Q. For 1886, that is prior to June 30, 1886, the company as far as you know have no books or records?

A. Yes, I so understand.

Q. So that assuming that your report is correct in that respect taking this first item—I do this for the purpose of getting your view point, under the first column $308,983 represents the amount actually invested as shown by the company's books.

A. In plant and working capital.

Q. And for the month of June 30, 1887, the value of the plant at the close of the year by including these several items, you arrive at the conclusion that the value of the investment was $330,289.

A. Yes, sir.

Q. Now how much of that is represented in so called overhead charges?

A. Not any of it in this way unless the company has during that year charged these overhead expenses which would properly be construction charges into these operating expenses. I don't know the amount.

Q. Do you know anything about it whether they have or not?

A. I don't know the amount, no sir.

Q. Would that make any difference if they had in your computations?

A. It would not affect the result, but it would affect some

1725 of the columns in this table. The amount which had been charged to operating expenses for that purpose and should have been charged to construction account and show as an addition to the plant during that year. Since both these columns are

added in the total it would not affect the total at all. This automatically adjusts that.

Q. The $18,394 representing additions to the plant including working capital that is the additional working capital, did you check that over to find out if that was correct?

A. I checked the total construction of this amount and then asked for the detailed expenditures that went into that amount and in that way verified the amount before the table was made up.

Q. Do you know how much additional capital was added?

A. Working capital?

Q. Yes.

A. I assumed there — an average of $5000 per year. If I may explain if I had analyzed the balance sheet each year during this period it would have shown some years the working capital materially increased and take some years it might have been slight, another year the particular day the books were closed the working capital might have appeared rather small——

Q. What I am getting at is if you can tell us——

Judge CARR: I think the witness ought to be allowed to complete his answer.

A. I merely wanted to add this statement. I computed the working capital at the beginning of this period and the working capital at the close of the period and then took the average increase each year which would give exactly the same answer as if I analyzed each balance sheet over these years.

Q. Take that balance sheet for 1887, I want to ascertain
1726 how much you include for working capital, how do you find it.

A. You will find it by referring to Exhibit "B" of schedule 1, the last column. That column shows the additions to the physical property that year.

Q. Schedule I, Exhibit "B" additions to plant 1886 to 1910?

A. Yes, sir. You will find that the additions to the physical property that year were $13,393.52. Wherever an amount of cents is in excess of 50 I make it $1.00 and where less than 50 I drop the cents, so if you will refer now to the table of going value you will find that the addition to plant that year is $18,394 which is equal to this figure from schedule 1, Exhibit "B" plus the $5,000 representing average increase in working capital over these years.

Q. You just assume that there was added to the working capital for the year 1887 this $5,000?

A. I assumed that the avarage was added because I know what the working capital was at the beginning of this period and I know what it was at the conclusion of the period. I can see from the earnings there and expenses that the business has greatly increased and I can safely assume that the working capital has kept pace with such advancing balance sheets. Rather than work it out each year I carry each year the average increase in working capital shown to have actually occurred over these years.

Q. In making your estimate for working capital if you take the

working capital as shown upon the company's books during the years covered by this report, or whether you have assumed a certain percentage to represent working capital covering that period.

A. No, sir; my working capital data is taken from the balance sheets of the company, no assumption.

Q. Each year you show in this report do you what the
1727 actual working capital for the company was for that year?

A. I am afraid we don't understand each other. There are here a period of twenty three years. I have seen the balance sheets for all these years and I have worked out the working capital for each of these years. In some years the advance is so much as fifteen or eighteen or twenty thousand dollars.

Q. What I want to know is, do you find anywhere any working capital account?

A. There is no working capital account on the books. It is balance sheet information.

Q. You get that showing how much that was each year?

A. I really take it, yes.

Q. How did you get at the working capital account.

A. From an analysis of the balance sheet.

Q. How do you analyze the balance sheet, in what way?

A. For determination of working capital?

Q. Yes.

A. Analyze the cash account, inventory account, accounts receivable and accounts payable.

Q. The reports or records which you saw on the question of extension of mains, did the company's books show the actual cost to the company for those mains?

A. Yes, and that is shown in detail in Exhibit "B" schedule 1 of my report.

Q. Extension and improvement, the first column page 5 of this report that represents the item to which I have called your attention?

A. It does not include mains if tha- is what you are inquiring.

Q. What does that include?

A. Includes land, buildings, and station manufacturing equipment.

Q. So that on June 30, 1886, $189,423.33 represented all
1728 these values.

A. Yes, sir.

Q. That includes real estate as well as the other property.

A. Yes, sir.

Q. Did you inquire as to how much they paid for the real estate or did you accept the company's statement?

A. I accepted the book figures.

Q. Do you remember whether the books you saw had any record of the amount which had been paid for real estate?

A. I believe they did.

Q. Were you furnished by the company with any information aside from the books with reference to that?

A. No, sir.

Q. Have you treated that in any other manner in this report except to accept the figures of the company?

A. No, sir; merely taken the ledger figure.
Q Now where are the mains and s-rvices shown here?
A. Mains are shown in the third column and services in the 5th column.
Q. That is extension of street mains?
A. Yes, sir.
Q. This $62,618.82 represents the amount paid that year for extension does it, extensions of street mains?
A. Yes, but that being the first year it represents the main account on the books. You see the company have been operating some years at that time. This represents the value of its street mains at that time.
Q. All the street mains?
A. Yes, sir. The item below that would be the amount for that year?
Q. Do you remember how many miles of mains they had at that time?
1729 A. No, sir. I saw a record of it, I don't know what it is.
Q. Had invested in meters $14,380.80.
A. Yes, sir.
Q. Invested in services, $18,957.10.
A. Yes, sir.
Q. $295,385.08, what does that represent?
A. That is the total cost of the plant as shown by the books on June 30, 1886.
Q. Now I believe you made some reference to the be-efits that accrue to this company on account of the fact that the United Gas Improvement Company had taken it under its wing for which they already received at least in 1910, $10,000.
A. Yes, sir.
Q. And I believe you wanted to give the inference that the Des Moines Gas Company was somewhat of an infant industry and needed the protection of the Uni-ed Gas Improvement Company, was that the thought?
A. No, I did not care to give any inference like that. I hadn't that idea in mind at all.
Q. You say economy can be practiced by having the advantage of a purchasing agent in the buying of materials and things of the sort.
A. Yes, you will secure more favorable prices that way.
Q. Do you know how much money the Des Moines Gas Company made say, in the year 1910, on account of these advantages to it?
A. No, I could not determine that.
Q. Did you try to determine it?
A. Whenever I pass on a matter of that kind I always like to satisfy myself that the company is not squandering the money, that it is not merely a device to pay money over to the holding company.
1730 Q. What I am getting at is did you attempt to inform yourself on that subject as to how much the company had actually earned by reason of this advantage?
A. I made some inquiry about that, yes.

Q. Did you satisfy yourself?

A. To the extent that I believed it was a good investment to spend the $10,000 a year.

Q. How much had they saved?

A. I don't know how much they saved, I didn't carry it all the way through.

Q. You didn't carry it through. How far did you carry the investigation.

A. I made inquiry and I also saw from the vouchers the prices which this company was paying for material which it was securing through this central purchasing agent.

Q. Can you recall any particular item upon which you noted there was considerable saving to the company?

A. While I have no specific figure in mind I recall that the company was getting very favorable prices on gas stoves and fixtures which were being purchased in very large amounts at the Philadelphia office and distributed among the subsidiary companies. The cast iron pipe I believe that was also true of them, although I have no specific figure in mind. I recall though at the time that they were getting good prices.

Q. Do you know what the company was paying for cast iron pipe in 1909?

A. I don't recall the figures, no sir.

Q. You could find that out for us could you?

A. The vouchers are in the company's files, I went over these vouchers for one year.

1731 Q. In making up your report here showing the actual amounts spent for street mains, you ascertained did you not how much they were paying for cast iron pipe in that year 1909?

A. No, Mr. Brennan, in making up the table to which you refer in the report that is taken from the ledger and the ledger figure would not show the cost per ton of pipe.

Q. Did you just adopt the amount which the ledger showed as being expended for extensions?

A. In all years except these last few where either I or my assistant checked the vouchers to see that the money had actually been expended.

Q. The vouchers would show the amount that had been actually paid by the company for cast iron pipe in 1909.

A. Yes, for all supplies and material purchased.

Q. Can you get that information for us?

Mr. GUERNSEY: Are these the same vouchers the city's experts are now working with?

A. Yes, the same records.

Mr. GUERNSEY: Then I think he ought not be asked to do it at our expense. I have no objection to his doing it at their expense.

A. I have not the figures in mind. They are on the records which the accountants are working at now.

Q. Do you know whether the company bought pipe any cheaper in 1910 than it did in 1909?

A. I had no specific recollection or any item on that.

Q. Or these extensions or supplies sold?

A. I don't remember, I have no specific recollection of that.

Q. Did you notice any material decrease in the cost of materials to the company in the year 1910, as compared with 1909, or 1908 or any of the other years?

1732 A. There are some fluctuations of accounts and amounts paid but much of that is due to the general market fluctuation. If any concessions are made they are concessions from the list and concessions from the market prices and would reflect more or less some general fluctuation of the market price.

Q. Were you shown the contract between the Des Moines Gas Company and United Gas Improvement Company?

A. No, sir.

Q. With respect to this matter?

A. No, sir.

Q. Did you inform yourself with respect thereto in any way?

A. No, sir.

Q. Did you inquire if there was a contract?

A. No, sir.

Q. Were you advised by any one that such a contract was in existence.

A. No, sir.

Q. Did you attempt to inform yourself as to the general scope or nature of this contract?

A. I don't know there was a contract. I don't recall ever having heard it mentioned.

Q. Do you know why it was the company paid the United Gas Improvement Company the sum of $10,000?

A. Yes, because some of the employés of the United Gas Improvement company were from time to time sent to Des Moines for the purpose of giving service in this city and as soon as they were through here they would go back to Philadelphia. They received for that a salary which is more or less nominal.

Q. Didn't it occur to you as somewhat singular to find an item for the year 1910 in the sum of $10,000 notwithstanding the services referred to by you had been performed through other years.

1733 A. It did in this sense attract my attention because it did not show up in any of the preceding years and I did ask officials of the company for an explanation of that and they told me that the service had been rendered during those years, but it was not until 1910 that it appeared on the books.

Q. Now did the $10,000 item purport to pay the United Gas Improvement Company for the service rendered during the year 1910, or did it purport to cover past service as well?

A. My recollection of that is it applied only to the year 1910, salaries paid monthly.

Q. It is your notion, is it, as an expert statistician, that the Des Moines Gas Company, considering the length of time that it has been operating in the city of Des Moines considering the fact that it is enjoying a monop-ly in this city, considering the fact that it is serving the number of consumers that the record in this case shows

that it is serving, that it is necessary and advantageous to pay to some other company the sum of $10,000 for these accompanying privileges.

A. In this specific instance it is advantageous to do that though I should not say necessary.

Q. What did the Des Moines Gas Company or the consumers get in return?

A. They got the service.

Q. What service?

A. These men they paid salary.

Q. What did they do, what services were performed that could not be done by Mr. Haines, Mr. Vincent and the staff here in Des Moines?

A. Representatives of the United Gas Improvement engineering department make frequent trips to this city for the purpose
1734 of inspecting the operating condition of the company as to the degree with which the gas plant is capable of satisfying the demands of the company. They make the proper design for extensions and improvements at the plant, representatives from the financial and auditing department come to this city to examine the company's books and make periodical audits here.

Q. You understand this company at least ostensibly is an Iowa corporation organized under the laws of the state of Iowa under the name of the Des Moines Gas Company?

A. Yes, that is the name.

Q. With certain officers?

A. Yes, sir.

Q. And directors mentioned in the articles of incorporation and their successors in office, you understand that don't you?

A. I assume, I have no recollection just now, I assume it is an Iowa corporation.

Q. You know Mr. Haines has been recently made the president of the Des Moines Company a corporation organized and existing under the laws of Iowa do you not?

A. I learned that from hearing Mr. Haines testify in this case.

Q. Now can you conceive of any good reason why any operative business man or corporation would pay to some other corporation the sum of $10,000 for the privileges which you have stated here to the Master and then expect the consumers to pay for that.

A. I think the consumers are receiving the better of the bargain.

Q. In what way, I wish you would tell the Master.

A. Because this company is receiving the benefit of technical experience of men in the employ of the United Gas Improvement Company without any other charge against this Company.

Q. Well don't you think that the United Gas Improvement
1735 Company would be subserving some interests of its own by paying this money?

A. The United Gas Improvement Company stands in the position of a stockholder and I presume any stockholder that took any interest in his investment, but if he did any other work outside of

his interest as a stockholder or director he would probably want to be paid for it.

Q. Do you know the United Gas Improvement Company is a stockholder in The Des Moines Gas Company?

A. I have been told that.

Q. A stockholder?

A. Yes, sir.

Q. How much stock does it own?

A. I believe it owns practically all of it. I have not made an examination of the books, I made inquiry and was told it controls all the stock.

Q. It is the United Gas & Improvement Company as far as the consumer is concerned?

A. No, sir; it is the Des Moines Gas Company.

Q. Now the United Gas Improvement Company own all the stock of the Des Moines Gas Company and all of the principal officers are in Philadelphia and they are interested in performing this service are they not?

Objected to as argumentative and as to getting very close to arguing a legal proposition and therefore is not competent.

A. To the extent of being a stockholder they are, but to my mind it is immaterial who owns the stock, what is material in this case is the investment value and the cost of the service, character of the service.

Q. Is there anything else charged up to the consumer in
1736 addition to this $10,000 to represent the value of the investment by reason and on account of the protectorate that has been established in this case?

A. I know of no additional charge.

Q. In other words in reaching the value of the investment December 31, 1910, did you add to that value anything for and on account of the fact that the United Gas Improvement Company is back of the investment and will protect it?

A. No, sir; I added nothing to my valuation because of that fact.

Q. And yet with this corporation back of it, as a holding company you still think that the investor in addition to all these other items is entitled to 8 per cent?

A. I think the investor is regardless of who he may happen to be.

Q. You told them in Chicago did you that they were entitled to 8 per cent down there?

A. In what case?

Q. In this People's Gas Light and Coke Company.

A. I did not.

Q. Did you fix 8 per cent down there?

A. No, sir.

Q. How much did you fix as reasonable return there?

Q. 7 per cent.

Q. You raised one out in Des Moines?

A. Yes, sir. My idea of the reasonable rate in Des Moines in this case is 8 per cent.

Q. Did you ever have any experience in Des Moines in investments?

A. No, sir.

Q. Ever talk with anyone who has?

A. No I never talked with any local man about investments?

Q. Have you studied investment conditions in Iowa to
1737 any extent?

A. I have made a study of financial and investment problems in the United States for the last seven or eight years.

Q. Well in Iowa.

A. Iowa is a part of that yes.

Q. Of course Iowa is a part of the United States, but what I am getting at is if you have studied any financial conditions referring specially to Iowa. .

A. Not expecially to Iowa, as a geographic district but as an area of the United States I have as part of the area.

Q. Now in making up this report somewhere I believe I notice that you had tabulated the rates which this company had charged and received for selling gas in Des Moines.

A. Yes, sir.

Q. Can you tell me where that is?

A. I cannot from this copy because this is not paged but it is in this report somewhere. On page 33.

Q. Now Mr. Hagenah just what was your purpose in making reference to the ordinance rates for the years 1896 down to 1910?

A. Just as a part of the historical review of the plant.

Q. Now did that enter into your computation as to the value of the investment and those early losses which you were recouping?

A. It does of course since the gross earnings for these years are used. The gross earnings upon that page each year and the operating expenses each year.

Q. Why didn't you put in what rates were charged by the company during its existence?

A. I don't know what the early rates are.

Q. Did you try to find out?

A. I did. I inquired what they had been and got this particular statement.

1738 Q. Did you regard the rates in force prior to 1896 as important in analyzing the question of value of investment?

A. It is taken into consideration in this total automatically.

Q. You haven't answered the question.

A. They are important because the gross earnings for each year is computed on the basis of the rate charged that year on the amount sold.

Q. My question is why you didn't go back to ascertain how much the company had been charging for gas sold in the city of Des Moines from the time of the installation of the plant.

A. I didn't have any figures submitted to me for the earlier period and this is in here merely as part of the history, does not affect the table at all.

Q. The fact is in 1896 was the time when the first reduction in

rates went into effect in Des Moines, that is your understanding isn't it?

A. I really don't know.

Q. That is to say the company from 1896 January 1st, down to December 31, 1910, they had an ordinance prescribing the rates which are set forth on page 33 of this report. Is that your understanding?

A. I understand that there is some contract under which rates have been automatically reduced here. I have no information as to what rates were in Des Moines except the rate in effect of $1.00 and ten cents gross. I requested the company to give me some information on that and this is what was submitted to me, that is a copy of it. I didn't ask for any earlier because I didn't attach any significance.

Q. Suppose in 1887 the rate was $2.50 a thousand would that make any difference?

1739 A. It would not make any difference in my report because the gross earnings in that report already recognize that.

Mr. GUERNSEY: In the preceding paragraphs you refer to a $1.80 rate. Evidently you had a different rate?

A. That might be, this report was prepared in March and I have forgotten if there is any statement here.

Mr. GUERNSEY: Mr. Brennan said he did not object to me calling the attention of the witness to it because it is evidently an oversight.

COURT: My understanding of it is that at the beginning of his ordinance it was $1.50 wasn't it?

Mr. BRENNAN: Yes, and then before that the rates had been up as high as almost $3.00 at one time if I remember it. There were different rates enforced by the Capital City Gas Light Company covering a period of years from the installation of the plant down to 1896 when this first ordinance fixing rates within the city of Des Moines went into force and effect.

Q. Now what I wanted to know Mr. Hagenah was if you depended entirely in getting your results upon the gross revenues of the company why you set out on page 33 the rates which were in force in the city of Des Moines for the company covering the years 1896 to and including the year 1910.

A. As purely a part of the discussion of the history of the Des Moines Gas Company. The going value table which you refer to is built upon the gross earnings shown by the books for each year.

Q. But don't it form a part of this scheme which you attempt to outline or method for the purpose of recouping the investor on account of early losses and in this same connection do you not take up and discuss the proposition that the rates prior to 1896

1740 were fluctuated more or less and were the subject of change and matters of that kind. Don't you dwell at some length on that proposition?

A. I believe I state in this report, though I don't recall exactly what you refer to that there has been a very decided but gradual

reduction of the price of gas in Des Moines. As part of the history of treating the gas rate question.

Q. You knew did you not that prior to the year 1896 that the gas company fixed its own price of gas?

A. I had no knowledge one way or the other on that, total stranger to it.

Q. Well would you consider that as important?

A. No, sir.

Q. Did you consider the question in making up this report that the company had been the subject of regulation by the city or the state?

A. Did I consider it?

Q. Yes, did you consider that as important?

A. Only as affecting what is a reasonable rate of return.

Q. Then you did consider it?

A. That the company is not subject to regulation by commission, I took that into consideration.

Q. Did you take that into consideration in this report that this company prior to 1896 had not been regulated by the city?

A. No, sir; that in nowise affects my figures in the report.

Q. In arriving at this 8 per cent return you said something about taking into account hazard incident to the investment?

A. I did not say hazard, but I did take hazards into consideration.

Q. Is that one of them?

A. Hazards of the business, one of the elements.

1741 Q. The so called hazard as you term it growing out of the right of the city or state to regulate?

A. When I said hazard I had in mind hazards of a commercial sense.

Q. What I want to know is what importance if any you attached to the fact that the company was subject to regulation by the state or the city in reference to the charges and prices which it should put into force?

A. I did take it into consideration.

Q. Now tell the Master just how you took it into consideration, how you applied it in making up this report?

A. I took it into consideration only in connection with arriving at what I considered to be the fair rate of return. I believe that a utility which is subjected to the uncertainties of a more or less inconsistent policy of regulation under municipalities no matter how honest and well directed the effort may be is such as to lead a company to expect a somewhat higher rate of return than where it is subjected to the consistent regulatory policy of a permanent commission.

Q. Now just how much did you allow to cover that hazard.

A. I could not put it in a mathematical term.

Q. You allowed 8 per cent in all as a reasonable return. Now how much in your judgment represents so called hazard due to the fact of such regulation?

A. I would not put in a mathematical term, I could not say so

much to reduce it to a certain fraction. It is an element which I take into consideration in arriving at this conclusion.

Q. Do you make any distinction between municipal corporation or a state commission exercising powers?

A. I do. I think utilities subject to the regulation of a state commission are receiving benefits——

1742 Q. I am not asking your reasons, simply want to known if you do make any distinction or difference.

A. I do.

Q. Now you spoke of this Antigo Water case. Will you tell the Master how much was allowed in that case as going value?

A. I have not a copy of the decision with me here and I really don't remember the details of that although I worked in connection with the case.

Q. Now don't you know there was not anything allowed in that case?

A. I don't take the position as to whether what you say is true or not, I have not the case well enough in mind.

Q. Did not the utility commission of the state of Wisconsin after going through the history of the Antigo Water Company and considering rates it had charged during the period of its life, find that the consumers had paid for these early losses in the excessive charges that were made for the services rendered.

A. I do not recall the case well enough to express any opinion other than that the commission in its analysis undoubtedly took these elements under consideration and if they allow going value had a reason for doing it and if they did not they had a reason for it.

Q. Is not the fundamental idea in the method pursued by the Wisconsin commission in rate cases where going value is brought into question they take into account the early charges made by the company and the amount of receipts therefrom and if they find that the consumer during these early years has been paying an excessive rate that that recoups the investor for these early losses, don't they consider that and isn't that one of the fundamental ideas.

A. No, sir.

1743 Q. Now what do they do in that connection if you know?

A. The specific rate paid by subscribers in early years is a matter of interest and may be considered, but you must consider the reasonableness of the rate not in view of conditions today and present prices, but in view of those prices and operating costs at the time that rate prevailed.

Q. Take this report of your-, Mr. Hagenah and assuming that you are correct, that it don't make any difference what the rate was that they received, that your theory works out just the same upon the gross earnings. Suppose that the company here in Des Moines charging say the first five years of the operation of the plant $5.00 per thousand cubic feet of gas sold and the consumers have been paying it. Would that make any difference in your computation in arriving at what the value of the investment was say in the year 1890 and assumed that was at the end of five years, 1885 to 1890 had been charging $5.00 per thousand cubic feet of gas sold?

A. Will you add to that anything for what operating expenses were at that time?

Q. Well I am assuming operating expenses as you have shown them here for the purposes of the question.

A. Well if they had received $5.00 per thousand on all their business the rate at that time would have yielded sufficient revenue to wipe out a part of the going value.

Q. Now have you in your report considered the rates which were in force say prior to 1896 for the purpose of ascertaining whether or not the rates which were in force did offset it?

A. I did, my tables built on that theory gives me the gross earnings which I deduct each year, represents the rate charged that year whatever it may have been, even as much as you say multi-
1744 plied by the sales which were made under that rate.

Q. You take the gross income from the year 1887 and are you able to tell from that amount just what the company was charging per thousand cubic feet?

A. No, sir. I don't know but if they were charging $3.00 per thousand it is operating to reduce this element of value which increases to this figure at the bottom of the column.

Q. The fact that the company was charging and receiving without objection $3.00 per thousand feet of gas, now at the end of 1887 when you come to the fixing of value on this investment is that predicated in any sense upon the rate which is being charged?

A. Through the gross earnings being based upon the rate charged that year. It is not necessary for me to get the rate contained in the gross amount.

Q. Assume that at that point the court or some tribunal having authority decided that rate was too high, that $1.50 was all that the company should have charged and received for that service would that make any difference in the value of your investment on the first of January?

A. It would not.

Q. Why not.

A. Because finance does not always weigh the opinion of the court and——

Q. We are assuming that the court is right in its conclusion that $1.50 is a reasonable rate for the service rendered.

A. It does not necessarily follow do I understand it if $1.50 is found unreasonable now it has been unreasonable for any length of time before.

Q. What I want to know is this, assume that the gross earnings, the gross receipts shown as in this report are predicated on a
1745 rate of $3.00 per thousand cubic feet of gas. That in truth and in fact $1.50 is all that service is worth so that your gross earnings are that much in excess of what they should be. Now when you come to ascertain the value of the investment at the end of the year will the rate which was charged by the company make any difference?

A. Yes, under the case that you give it will automatically reduce this element of value because——

Q. Now what would be the value of the investment assuming that the rate should have been $1.50 instead of $3.00?

A. If the rate should have been $1.50 instead of $3.00 then to determine the reasonableness of that $1.50 you would have to make an analysis of the operating expenses including depreciation. You would find out then under the $3.00 rate so much to gross earnings and may have added so much that there would have been absolutely no deficit that year but showed a surplus which under this table would automatically apply to wipe out subsequent deficits is there were any. Now if the table was pursued right straight through on that basis we could arrive on the valuation in this case on your assumption say in a figure considerably less than the present physical value of the property.

Q. I understand you have no records, none furnished you and that you have no information with respect to the amount of the gross revenues of the company or the depreciation of the same for the years prior to 1886?

A. No, sir; I have no information prior to that.

Q. So in making up your estimates of the value of the investment of course you have not taken anything into account, the conditions into account preceding the year 1886?

A. No sir.

1746 Q. Now if it should appear that during the history of the plant, its operation up to the year 1887 that the company had earned more than that to which it was entitled under the law would that change your figures in this report?

A. Yes, I would take my table back beginning with the first year for which I had information and carry it forward from that year instead 1886. If then the company had had a large surplus at the end of each of these years it would show to lower the figure here. The surplus each year being dividends earned by the rate charged or by the difference between the operating expenses at that time and the rate at that time and the gross earnings at that rate.

Q. Isn't that in effect the theory pursued by the Wisconsin rate commission in rate cases in computing this so called going value, value of investment, going concern value or whatever you may term it? Isn't that the method pursued. In other words if the consumers during early years of operations of the plant have paid in these excessive charges that then there can be no such thing as going value in a rate case?

A. No, sir; that is not so.

Q. And isn't that the logic and conclusion of this commission in the Antigo Water case?

A. It is not.

Q. You say it is not?

A. No, sir. Based on the question as you put it because you do not consider in connection with excessive rate in years gone by the excessive operating expenses making it necessary to charge that excessive rate. There have been companies charging as high a rate as $1.50, $1.75, and $2.00 that have been forced into the hands of receivers whereas companies charging 85 cents, prosper.

1747 Q. You don't know of any gas company in Des Moines having been forced in the hands of a receiver?

A. No, sir.

Q. Do you know when it was the state of Iowa first undertook to regulate prices or charges of gas companies?

A. No, sir; I do not.

Q. Do you know that it is a fact that not until 1892 or '93 that any attempt was made on the part of the state of Iowa or municipalities to regulate the prices or charges for gas in the city of Des Moines?

A. No, sir; I have no knowledge on the subject.

Q. Would the fact that this was but the second attempt in the history of the gas business in the city of Des Moines to regulate rates, would that have anything to do with the hazard you consider in connection with the rate of return?

A. No, sir.

Q. The mere fact the right exists you think ought to be charged up to the consumer a-though never exercised?

A. It is not so much the extent to which you carry that exercise at any particular time as the danger that you may exercise it at any time.

Q. The fact it is there you think is a menace to the investor?

A. Yes, sir.

Q. That it may be exercised at any time and therefore the investor is entitled to a larger return.

A. Yes, sir. If I may add I think that a contract for a number of years say four or five years would justify a somewhat lower rate of return than where the rate question or reasonableness of the rate may be exercised at any time and as often as the coun- de-

1748 sires.

Q. Now the difference between the $1,928,016 and the amount which you finally arrive at as representing the value of the investment, the difference between those figures represent what?

A. What I would call the accumulated losses.

Q. Is there any difference between these accumulated losses and socalled overhead charges?

A. Yes, sir.

Q. What is the difference, where is the difference?

A. What I understand your idea of overhead charges to be that is an addition to the construction of the plant by virtue of its supervision during construction.

Q. You consider that at all in arriving at the value of the investment?

A. I have not in this table except as the items are included in operating expenses. I make no different computation.

Q. It is charged in somewhere along the line?

A. A very small degree of it has crept in.

Q. You do consider engineering charges and contingencies during the period of construction?

A. As I consider them part of the construction charge, but I have not made any addition for that purpose in these values.

Q. It appears somewhere increases the operating expense or some other expense account don't it. In other words, if you would just take the actual cost of operation without regard to these contingencies your operating expense account, would not be as large.

A. Be a difference amount of operating expenses, but charges which should be to capital account and it is automatically taken care of in this table. If the item is not construction work but is
1749 an item of overhead character they have charged there on the books it shows to that extent the reasonable overhead charges.

Q. Do you know of any such case to which you have referred?

A. I have not any in mind. I am merely stating how that would come. I know during construction of a building they are not charged on the books with what might be reasonable overhead charge what would be regarded as reasonable.

Q. That is an assumption on your part?

A. An assumption based upon an analysis shown by the facts established on the company's books.

COURT: You take two and a half per cent depreciation would give forty years' life on the plant.

A. I think that is a little high, that is the way I worked it, some tables use a lower rate.

COURT: I wish you would answer my question. Two and a half per cent depreciation is forty years' life of the plant?

A. Approximately.

COURT: And two and three quarters, how do you figure that, thirty seven and something?

A. I have not the engineering data.

COURT: I want simply some idea on what you based it?

A. It is about that much.

COURT: Two per cent would be fifty years?

A. Yes, but in arriving at the two per cent I allow the sinking fund method which amounts to a life of not fifty but would be probably around thirty four years.

COURT: Have you calculated compound interest on this money set aside?

A. No, sir; I have not worked out any formula on that.

1750 Mr. BRENNAN: Could you by tomorrow morning without too much trouble give us the sales by number of thousand cubic feet of gas in the years you considered in connection with this report. If you can do that without too much trouble, we would like to have it.

A. I don't know where that data is just now but I will make an effort to get it for you.

Here the further hearing was adjourned until 9:30 o'clock tomorrow.

1751 AUGUST 5, 1911, 9:30 a. m.

Counsel for respective parties all present.

At this time, 9:30 A. M., at the request of counsel for defendants, an adjournment was taken until 9:30 A. M. August 7th, 1911.

MONDAY, AUGUST 7TH, 1911, 9:30 a. m.

Counsel for respective parties all present.

At this time, 9:30 A. M., at the request of counsel for defendants, an adjournment was taken until 2 P. M. of this day.

1752 TWO O'CLOCK P. M., MONDAY, *August* 7, 1911.

W. J. HAGENAH being continued on cross examination by R. O. Brennan, Esq., testified as follows:

Q. Mr. Hagenah, I got the understanding from something you said on your examination in chief that you inclined towards the cost price of the property in arriving at its appraisement for valuation rather than at the duplication method?

A. I use one method to supplement the other. I would always ascertain if possible the cost in connection with the appraisal of the property for rate making purposes.

Q. And where you have the data and records from which you can ascertain the cost price of the property then you regard that as the most satisfactory do you not in making an appraisement or valuation of the property?

A. Not without making some analysis and adjustments beyond that point.

Q. And where you have the data and records to which I call your attention you would not go out in the realm of reproduction to the extent that you might do if the records and data were not available would you?

A. Yes, I would still make an appraisal but I would not be guided by either without supplementing or checking my figures with the other.

Q. Now at page 44 of Exhibit 23, which is the page following immediately the table showing annual investment on the 8 per cent earning basis—you were addressing this report to the Des Moines Gas Company were you not?

A. Yes, sir.

1753 Q. I call your attention now to page 44 commencing at the 5th line, your records are complete and admit of detailed analysis. You were referring to the records of the Des Moines Gas Co. in that statement were you not?

A. Yes, sir; the construction account.

Q. And the pronoun "your" had reference to the Des Moines Gas Co.?

A. To the company yes.

Q. It is believed that where the records covering early transactions are available the investment value should be determined in this manner rather than to base it upon the experience of some other plant

in some other city under entirely different conditions. When the early records are not available such investment must be determined from other sources more particularly on the cost of reproduction basis. This method was not necessary here so that the tables show actual cost and investments in Des Moines unaffected by conditions making for higher or lower values in other cities. When you made your report to the Des Moines Gas Co. in reference to your investigations you meant just what you have stated here did you not?

A. Yes, sir. That in arriving at the investment value of the property for rate making purposes I would analyze the construction cost and to arrive then at the final amount upon which the rate of return should apply I would use that construction record analyzed as I have shown in this report to determine my final value whoch includes the accumulative losses during the period of development.

Q. Well you followed that method throughout your report did you not?

A. In this report?

Q. Yes.

1754 A. Yes, there are no reproduction costs in this report.

Q. Therefore it is your idea is it not, Mr. Hagenah that where you have the records of the company such as you have in this case that you regard it as the most satisfactory way of arriving at the value of the investment rather than to produce that value or attempt to produce it on the reproduction theory?

A. I would not put it as strong as that.

Q. Well how strongly would you put it?

A. To explain my position I would have to go into more detail. The book figures show the prices which the company paid for the property at the time that it made the purchase. Land has appreciated under ordinary conditions since its purchase. We know the commodity prices have advanced materially. We know that labor prices have advanced. We find certain items after making an analysis are not always, and in this particular instance do not appear to have been charged to the construction account. Therefore even if the construction account admits of the most detailed analysis it would not in this case give the full value of the property or cost of the property rather upon which the rate of return should apply without making additional analysis.

Q. In other words you consider the changed conditions in the prices of labor or in the prices of materials since the items were placed upon the books representing the cost at that time.

A. Yes, sir.

Q. Now then if you found upon analysis and upon investigation that the prices shown by the records of the company were in excess of prevailing conditions at the time of the investigation would you make the credit in favor of the public?

A. Yes, that is the reason why a reproduction value of the property should be ascertained to use as a supplement to the cost of

1755 production.

Q. Well is that the entire property or just these items

which are affected by the conditions at the time of the investigation?

A. That would mean to separate the particular items where there has been a material enhancement or reduction in cost that would be satisfactory, but it cannot always be done so the proper way in my estimating of arriving at the valuation is that where your costs admit of a careful analysis to make that detailed statement and then to make an appraisal of the property on the reproduction basis less depreciation giving you present value and to place them side by side and from that information to exercise a reasonable and fair judgment as to what would be proper and fair to the public and fair to the investor.

Q. And that judgment is based primarily upon the conditions which you find on the books representing investment made by the stockholders?

A. One of the elements, but nor primarily.

Q. Isn't it the principal element which fixes your judgment in determining the value of the investment, the method you have pursued in this case your standpoint?

A. No, sir; I have sufficient specific instances in mind to guard me against doing that in my work.

Q. So far as this report is concerned you have not adopted the reproduction method?

A. No, sir; because I have no engineering estimates in this report to give present values.

Q. Your reason for that is explained on page 44 of Exhibit 23 is it not?

A. What line do you refer to?

Q. The matter to which I call your attention that occurs on page 44 where you state to the company the fact that the records
1756 were in such shape you were able to make an analysis of them from the records and from the records ascertain the value of the investment?

A. The quotation from the report to which you refer shows my analysis from the construction account here in the absence of any engineering data.

Q. I see you explain also do you not in that page 44, that it is not necessary to adopt any other method on account of the books and records being substantially complete?

A. It is not necessary if the logic of this report is carried through entirely. If, however, you were to put merely the construction cost of labor and material without carrying the analysis farther into the account of losses, then of course the analysis of the books alone would not give you proper value?

Q. I understand that, but what I mean to say is, you have told the Des Moines Gas Co. the method by which you arrived at your valuation of the investment and that you did not deem it necessary in view of the fact that its books and records were in the condition that you found them to indulge in the reproduction method or

theory in arriving at that valuation and that you have fully explained in page 44 of this report.

A. Because I had access to sufficient detailed information I was enabled to work out the actual cost and losses during this period of twenty odd years to give them what I considered the investment value today?

Q. I assume that in this report you have endeavored to include what the other engineers have termed going value have you not?

A. Not the same going value as defined by them.

Q. No, but it works out on the same theory, it is an intangible value is it not which you consider in connection with your

1757 appraisement?

A. I would hardly call it an intangible value, I call it the losses which the company could not avoid in operating its business and upon which it should therefore be entitled to a reasonable rate of return until the surplus profits wiped out these early losses?

Q. In other words you capitalize the early losses of the company do you not, by your process?

A. In these tables.

Q. Yes, that is what I mean. And why do you do that, what purpose do you have in capitalizing the early losses?

A. Because I believe the investor has not received that reasonable rate of return to which he is entitled in law and in business unless he is reimbursed for his losses. If that adjustment is not given, if he is not allowed to add to his investment the unavoidable losses, that amount which he may receive reasonable rate of return upon, what we call investment exclusive of these items it will not, as a matter of fact be the same rate of reasonable return upon his actual investment.

Q. The thought I am trying to bring out is whether that is the equivalent of the going value theory which has been advanced by Mr. Baehr and Mr. Lea?

A. I don't understand it so. There are logical differences.

Q. So you in this report do not treat of the subject of going value at all, is that correct?

A. The term going value has so many different definitions it is almost impossible to get two or three different people to mean the same thing when speaking of it that way. I would rather call it investment value.

1758 Q. Do you regard it as equivalent to the going value theory that has been advanced, that is in its final analysis and final results?

A. I would not want to say that the company was entitled to any going value over and above the allowance I make it here, yet I would not exactly say that this is the same element which they are trying to arrive at.

Q. Well is it the same method by which you reach a conclusion as to the value of the property of the People's Gas Light & Coke Co. at Chicago?

A. The same process of reasoning, yes.

Q. You treated it in your report to the sub-committee of the city council of Chicago as going value did you not, or at least took up the subject of going value and attempted to discuss it in your report.

A. I did take up the subject of going value and treated it at considerable length where in I made the statement that the term was so indefinite that very few people had the same conception of the meaning ordinarily conveyed by the term. I called it some broader term and in connection with my analysis referred to several methods of arriving at going value. This really approximates it although I would not say it is the going value.

Q. In other words what you intended to point out in that report was that you had reached the value of the property along the lines as you have stated in this case.

A. Yes, sir.

Q. And that you were saying to the committee of the city council in said report that this included that going value item.

A. Yes, I think this is the best and fairest way to both parties concerned in arriving at that more or less intangible and
1759 indefinite item which has up to this time been called going value or franchise value as some people call it, that also enters in this element under discussion.

Q. You of course did not undertake to define what going value is?

A. I attempted to define it in the gas report of which you have a copy.

Q. Have you a copy of your report?

A. Yes, sir.

Q. That you made to the gas sub-committee and submitted to the — of the city council of the City of Chicago.

A. I have.

Q. Now at page 44 of that report you use this language do you not? "The term 'going value' has never been defined by the courts or students of public service problems in a manner to meet with general acceptance. Its existence however, has been recognized by all the courts and public service commissions and it must be allowed in computing the amount of the investment. Whether such value exists as an incident of the physical plant, whether it is entirely independent of the physical value and to be determined from other sources of information, as, for example, the number of customers or the gross earnings, or whether such value may deserve no consideration as an addition to the physical plant, depends largely upon the definition adopted."

A. Yes, sir; that is the correct quotation from the report.

Q. Well now just how do you define it in this case, so that we may apply your reasoning to the testimony, I mean the case we are now trying, the instant case?

A. If you will pardon me just a moment I think I have my definition in the report somewhere, I don't know just what page it
1760 is on. I think I can find that definition quicker if I may refer to another paper.

Q. Refer to any record you may have.

A. I will quote here from an article which I wrote and in which I say that going value exists by virtue of a public utility being a live operative unit actually producing revenue and supplying service to its customers who have been induced to subscribe thus giving to the company its established income, in the development of which large expenditures have been made in one form or anot-er leading to the probable postponement of interests and dividend returns to the stockholders.

Q. That was the definition that you applied in the Chicago case was it, Mr. Hagenah?

A. That is the definition I have always had in mind and I must have considered it such at that time and I have defined it in this report although I cannot turn to the exact paragraph now.

Q. Now in placing a valuation upon the property of the People's Gas Light & Coke Co., was your going value predicated upon the thought of early losses sustained by the company in the conduct of its business or was it based on the thought that the company induced or had expended money in securing their franchises and relieving themselves of competition?

A. I endeavored to place my going value as I have defined it upon the facts as shown from the analysis of the various records which the officials of the People's Gas Light & Coke Company submitted to me in the quest for that. I desired to ascertain the losses which the company had sustained in the conduct of its business and endeavored and believe I succeeded in eliminating from my allowance for going value every element of franchise value.

1761 Q. But you did in your report to the sub-committee recommend an allowance approximately of ten millions did you not to cover the item of going value.

A. That is approximately the amo-nt that my tables sho-ed for the calendar year, 1909.

Q. And just what did that ten millions represent?

A. The losses as I analyzed them from this examination of the company's records through the period since 1897 when the consolidation took effect in that city.

Q. Were those losses that were incident to the conduct of the business in operating its gas works and in manufacturing and distributing gas in the city of Chicago, or was it to reimburse the company for the expenditures made by it in buying franchises or getting rid of competition?

A. To reimburse them for the element of loss and for expenditures which they could not avoid because of the policy which existed at that time and again I say that I placed no value upon the element of franchise.

Q. And didn't you put it on the basis of a penalty against the people of the city of Chicago from the fact that they had through the council granted franchises from time to time to other companies and thereby had created sharp competition and on account of the acts and conduct of the citizens of Chicago as declared by the city council that they should pay for the trouble that they had caused

the People's Gas Light & Coke Co. Wasn't that the sum and substance of the theory upon which you recommended this $10,000,000 as part of your valuation?

A. No, sir; not in the way in which you state it.

Q. Well now in what way did you state it in that respect?

A. I have stated it in a very detailed form in this report
1762 which covers a good many pages of analysis of that very item all of which is based upon the company's detailed costs and represent as I said an allowance for losses in business and the property which the company purchased in the form of expenditures which could not be avoided but no allowance for franchise value.

Q. Have you your typewritten report or a copy of it among your papers?

A. Which report?

Q. That you made to this sub committee of the council of the city of Chicago?

A. No, sir.

COURT: I want to ask a few questions. You found the book value of this concern on the 30 h day of June 1887 tp be $308,983?

A. Yes, sir; that includes the working capital on that date.

COURT: Now you add to that 8 per cent interest for one year.

A. Yes, sir.

COURT: And then you added to that the additions to the plant which amount to $18,394.

A. Yes, sir.

COURT: Then you added to that interest on the additions to the plant for six months at 8 per cent interest?

A. Yes, sir.

COURT: And then you also added to that the operating expenses, the entire operating expenses of the year?

A. Yes, sir.

COURT: Then you added one fortieth of the capital at the beginning of the year June 30th, 1887 for depreciation?

A. Yes, sir. This is not on the total property, but on the depreciable property. Not that amount but a smaller amount.
1763 That includes land and working capital which is not depreciable.

COURT: That total made $412,082?

A. Yes, sir.

COURT: Then you took from that the gross income?

A. Yes, sir.

COURT: That left you $333,289?

A. Yes, sir.

COURT: You took that for your original capital then at the beginning of that year?

A. Yes, sir.

COURT: This amount was contained in the treasury $7,497?

A. Not necessarily in the -reasury for any length of time.

COURT: Did you find it there at the end of the year, they had not expended it had they?

A. The amounts charged for replacement would not be charged

in the operating expenses. This is the amount which represents the depreciation during the year. They may not have replaced any property to represent that accrued depreciation, in that event you are correct in saying it will be in the treasury. If they did actually replace what is represented by accrued depreciation during the year they might have wiped that out so there would be none of it in the treasury.

COURT: But it would be depreciation made good?

A. It would in that event, yes sir.

COURT: That is included now each year isn't it in getting at these totals?

A. Yes, sir.

COURT: Did you ever calculate to know how much that would amount to at 8 per cent interest?

A. They include it this way so as to insure your plant in
1764 first class condition at the end of each year.

COURT: It would be in first class condition at the end of 24 years?

A. If you allow that amount for investment value.

COURT: This is figured at 8 per cent all the way through here, whether used or not used?

A. Yes, sir. They may use more than that amount some year and have to borrow.

COURT: To make good the depreciation?

A. Yes, sir.

COURT: I notice here in red $588.20 and then in the totals that red is taken out, how does that come?

A. You mean my figures are in red. They were credits on construction account that year, the property was reduced in value on the books? That amount on the construction account was taken out.

COURT: That is true also in the street lamp extension?

A. Yes, sir.

COURT: Also in the meter account?

A. Yes, sir.

COURT: If I understand you correctly the amount of money expended after deducting all these by the company taking its book value, $295,383.08, was that its book value at that time?

A. At the end of 1887, yes. I added to that the working capital.

COURT: This is minus working capital?

A. Yes. The amount total in the last column, $298,383.08 is the total amount of money invested in the plant on the 30th day of June, 1886 according to the books less the working capitale, the total value of the plant or property.

COURT: The total value of the property?

1765 A. That is the total value of the property.

COURT: In other words that is the total amount of capital invested at that time less the working capital?

A. Yes, sir.

COURT: You have ascertained that each year here?

A. Yes, sir.

COURT: And you find at the close of the first day of January there was $1,928,016.65 actually invested by the company according to the books?

A. Yes, sir.

COURT: Is that correct.

A. Yes, sir.

COURT: And you have examined these books carefully?

A. Yes, sir.

COURT: You are satisfied that is correct?

A. Yes, sir.

COURT: There is another thing I don't understand, that is what are your fixed charges I wish you would show me where they are?

A. The fixed charges represent the interest on the company's bonds for the year.

COURT: Also earnings on the preferred stock?

A. No, that is not a fixed charge, that is a dividend. Dividends are not regarded as fixed charges. The directors will not necessarily have to pay the dividend but they will have to pay the interest.

COURT: What I wanted to know in particular is what fixed charges are?

A. It is interest on the bonds.

COURT: And taxes?

A. No, sir.

1766 COURT: Fixed charges is interest on bonds?

A. Yes, sir.

COURT: What do they amount to?

A. The fixed charges for the year 1910 were $80,014.10, there were no dividends.

COURT: Table "B" is $84,493, page 22?

A. That represents the interest on bonds.

COURT: Now what was the interest on bonds?

A. For which year?

COURT: Well for the years given here.

A. The figure you gave is the year 1909. I just gave the figures for 1910, $80,014.10.

COURT: This is on a different year?

A. Yes, sir.

Mr. BRENNAN: I don't want to take up the subject of depreciation at this time, but there is one question in connection with the Master's inquiry I would like to have you state, that is in your table there, I believe you estimated two and three quarters per cent on depreciation?

A. That was my first trial table.

Q. Does the fact that the property is in say a 90 per cent state or condition, — that make any difference in your mind as to the amount of interest, two and a half or two and three quarters you have adopted there?

A. You mean depreciation not interest?

Q. Depreciation, yes.

A. I would not make any such an allowance. I want to be understood as not basing my final allowance on two and three quarters.

Q. And what do you say?

A. Two per cent on depreciable property and I have a
1767 second table at two and a quarter.

Q. By depreciable property I presume you mean all property subject to decay or deterioration?

A. Yes, sir.

Q. But not including real estate?

A. Real estate has been eliminated because that does not depreciate. Working capital is not included in computing this allowance.

Q. Of course current repairs, you don't include that do you as depreciation?

A. No, sir.

Q. Returning to the subject of your report to the sub-committee of the council of the city of Chicago, I want to get thoroughly fixed in my mind if I can your theory of this going value and I am not calling your attention to page 47 of your printed report to that sub-committee in this you use this language: "It is impossible to trace the history of the gas business in Chicago without realizing that the policy pursued has created tremendous losses." Now just what policy was pursued that resulted in these tremendous losses?

A. The unnecessary duplication of plants referred to in the succeeding sentence.

Q. Continuing you say "Plants have been built, streets torn up and the development of a business of established companies greatly hampered, if not partly destroyed, for all of which there was no real occasion. To protect itself in such a situation there was little which an established utility could do except to purchase its rival outright or to enter into an agreement at the earliest possible date before extensive investments were made. This situation in a sense
1768 created prior to 1897 a ready market for franchises and the prices varied with the possibilities of the newer companies, and probably also with the influence of grantees. That this situation with its opportunity for private profit in addition to the desired competition was clearly realized may be assumed from the number of franchises granted and the prices paid therefor. Unfortunately the records of these many transactions are not as complete as they should be in order to make possible the most satisfactory analysis of the intangible values due to the forced investment but there appears to be sufficient data to warrant a belief that some of those who were entrusted with the protection of the public rights and also certain officers of the purchasing companies found in the combinations means for mutual profit. When the public, even with the best intention, has thrown obstacles in the way of development of its utilities leaving them no option except to remove those obstacles at a heavy cost or to engage in a struggle in which the company must inevitably suffer, such burden in law and in common fairness must be regarded as an investment expenditure." Isn't it a fact that these ten millions which you recommended to this committee as representing that investment was predicated entirely upon

the expenditures which you have stated in that report namely the amount which the company paid or which did not go outside of the company.

A. It is not.

Q. Well what else do you have in mind?

A. I tried to explain that at length Friday but I was not permitted to. In the absence of my detailed record I cannot give you all the elements other than to say that I made a thorough analysis of that company's books along the same line of reasoning which I have done in this case, that I found certain elements of
1769 losses in operation, that I found expenditures which the company could not avoid due to this policy, that there were elements which I think it would be extremely unfair to charge against the public all of which I eliminated in those instances and that from the records to which I had access and which my men examined I came to the conclusion that an allowance of ten million dollars should be made to the benefit of the company and that the balance of such losses or expenditures should not be charged against the people of Chicago. In the absence of my record I cannot give you any more detailed statement.

Q. Continuing at the bottom of page 47 you say "Where such expenditure is increased because of private gain, this amount should not be considered as an addition to the investment. The problem in each case is to determine the legitimate expenditure which the existing company could not avoid because of the city's erroneous policy." Now did you determine from the investigations that you made and data which was furnished to you just how much the People's Gas Light & Coke Company or its immediate predecessor had paid to get rid of its competetive rivalry?

A. I made an analysis on that subject, yes.

Q. Do you remember what your figures were on that subject?

A. No, sir.

Q. Well you did find it largely in excess of ten millions did you not?

A. I found the losses and unavoidable expenditures exceeded ten million dollars.

Q. I am speaking now of the amount which was paid for these franchises and to get them out of the way and in retiring these rivals and competitors from the gas field in Chicago?

1770 A. Yes, that amount exceeded ten million dollars.

Q. You did find that while that amount exceeded ten million dollars that you were only able to find that those on the inside had expended ten millions?

A. I don't remember that.

Q. Now did you make a statement before the sub-committee of the city council of the City of Chicago with reference to the report?

A. The sub-committee and the committee on gas, oil and electric light in Chicago never gave me opportunity to explain my report.

Q. Did you make a statement to the committee or any member of the committee at any time in connection with your report or the full committee which was taken down at the time by a stenographer?

A. There was some discussion before the committee but I never was given opportunity to explain my report as I should have been.

Q. On the 6th day of June, 1911, Mr. Hangenah, or about that date, before this committee which you have referred to I will ask you if you made this statement in connection with your report as follows: "It was the cost of the franchises which the company had to purchase in order to maibtain its monopoly rights and losses in developing the business of these different companies that were absorbed in 1897 so far as I could compute it and the extraordinary legal expenses which the company could not avoid in connection with these various contests which they had for a number of years prior to 1897?" Did you make that statement?

A. I don't remember whether that is a correct quotation. The subject was discussed there.

Q. Or that in substance, was that about the substance of what you told the committee?

1771 A. We discussed that subject. I don't remember that particular quotation.

Q. Well you recollect that the subject to which I am calling your attention was the subject of conversation and discussion at that committee meeting?

A. We discussed that subject there yes.

Q. You made the statement to them in reference to the amount which you had allowed and recommended in your report?

A. We had a running argument there in which everybody took more or less of an active part. I don't remember the exact quotation to which you refer.

Q. Well of course you are not prepared — that is not what you said at the time?

A. I would not express any opinion on it.

Q. Did you state to that committee and at that same time or during that meeting that the company had on its books $23,000,000 spent to clear the field of competing companies and which you termed as parasites and that you thought that only 10 millions represents money that went to those outside of the company directly benefited. Did you state to the committee while you were discussing your report and making explanations of its contents that or that in substance to which I have called your attention.

A. I remember discussing the subject but I don't recall any specific remark. I would not want to express an opinion on that without refreshing my memory from my own notes.

Q. Does the amount 23 millions, does that refresh your recollection to the extent that you are able now to say that you did find upon the books of this company which you investigated this 23 million dollars representing this item?

1772 A. If you were more familiar with the situation in Chicago at the time of the consolidation of the People's Gas Light & Coke Co., the present corporation there that remark to which you refer I think would be more easily understood. At that time there was a consolidation under the act of the legislature involving about——

Q. I hardly think that is in the question, but of course I don't care, you may go ahead, proceed if you want to, if that is the only way.

A. I was trying to clear it up. There was a consolidation at that time of about eight or nine more or less competing gas companies and the company's adjusting balance sheet showed an issue of stock of substantially that amount in excess of the property which I found embraced in the consolidation. As to the details of the amount I can express no opinion now in the absence of my record.

Q. As I understand you in the city of Chicago prior to this act which authorized consolidation there were a number of competing companies engaged in supplying and distributing gas?

A. Yes, sir.

Q. And a sharp competition in the city. And the People's Gas Light & Coke company, or its immediate predecessors or one of them spent this twenty three million of dollars from time to time in taking up franchises and reducing competition.

A. I don't know that.

Q. I say that is what the books show which you investigated?

A. No, sir.

Q. That is what you stated the amount which the books showed expended of twenty three million for that purpose?

A. The books showed the issue of stock to the amount substantially of twenty three million dollars in excess of the amount of property which I could determine was turned into the new People's Gas Light & Coke Company and devoted to the public use.

1773

Q. You refer to these rival companies as parasites, don't you remember using that term?

A. Doubtless I called them that, I would consider them tha- now I think so.

Q. And before that committee you stated didn't you in substance that you found or rather you were not able to find that any more than ten million represented money that went to those outside of the company directly benefited.

A. The ten millions represented what I in my judgment felt should be the allowance made in addition to the value of the physical property.

Q. You did allow ten millions, recommended that amount as going value to cover this expenditure, wasn't tha- the sum and substance of your report?

A. I recommended the allowance of ten million dollars in addition to physical value.

Q. To cover these expenditures to which I called attention?

A. To cover expenditures as I analyzed them to the committee.

Q. Do you say you did not make the statements to the committee I have quoted?

A. I do not know. I have not the records here. I don't know whether you are quoting me correctly without the record.

Q. Did you state to that committee that the company, referring now to the People's Gas Light & Coke Company had on its books twenty three millions of lollars spent to clear the field of competing

companies and which you term parasites, but that you found
1774 only ten millions represented money that went to those outside of the company directly benefited. Did you state that to the committee or that in substance?

A. I don't recall *your* exact words. I have stated what I believe was my remark before the committee.

Q. I am not asking your exact words, did you state that or that in substance?

A. I don't remember all the details which you include in that question.

Q. Did you say that is not the substance of the statement which you made to this committee?

A. I don't remember. I understand a record was taken at that time and I have a copy of that somewhere in my records.

Q. Have you got that with you?

A. No, sir; I have not

Q. There was a transcript of the record that was made of the proceedings of this committee was there not?

A. I believe so.

Q. You say you have a copy of that?

A. Not with me. A copy was furnished me. Not of the entire proceedings because I didn't stay with the city during the proceedings on the gas question.

Q. You had a copy of what took place, what was said during the time you were present before the committee.

A. Not all of it. I was not furnished a copy of the proceedings which I participated in the last two days I was with the city of Chicago.

Q. What did you mean by the language I have quoted there and to which I called your attention?

A. I don't know that that was my language.

1775 Q. Now I will call your attention to page 47 of this report, your printed report where you use this language "When the public, even with the best intention, has thrown obstacles in the way of development of its utilities, leaving them no option except to remove those obstacles at a heavy cost or to engage in a struggle in which the company must inevitably suffer, such burden in law and in common fairness must be regarded as an investment expenditure." What did you mean by that?

A. That represents my honest view.

Q. What is your honest view?

A. That this statement as just given which expresses my view. I made an examination of the company's books in connection with that.

Q. What expenditure did you have in mind, what was it?

A. Expenditures which the company at that time could not avoid because of the property which it was compelled to assume in the exercise of its public service monopoly.

Q. You use the language here investment expenditure, now just what was that expenditure which you had in mind?

A. The term investment expenditure is not singular at all. I am merely referring to a class.

Q. Now what did you have in mind, what expenditure?

A. Legitimate construction items as I have analyzed them from the company's records.

Q. The total of the other items you were considering and then this particular item of going value which you recommended should be allowed by the city council of the city of Chicago in favor of that company to the extent of ten million dollars. I want to ask you what you had in mind when you said to that committee in your report that when the public even with the best intention has
1776 thrown obstacles in the way of development of its utilities, leaving them no option except to remove those obstacles at a heavy cost or to engage in a struggle in which the company must inevitably suffer, such burden in law and in common fairness must be regarded as an investment expenditure.

A. Will you permit me to give you an example?

Q. I would like to have an answer to the question as to what that referred to?

A. Referred to my analysis of the company's books and the conclusion which I drew from it.

Q. You concluded didn't you that the company had as you stated, was compelled to go out and retire these rivals from the field.

A. They did retire quite a number of them.

Q. And that you were able to trace a credit to the company of about ten millions, but the rest of it you could not tell who got the benefit of it?

A. That was substantially the result of my analysis of the equities at that time.

Q. You recommended to the city council at that time it was to the amount or extent of ten million? The going value.

A. I don't know as going value was the proper term, I allowed them as an element of value in addition to the physical property.

Q. You had going value in mind didn't you?

A. I discussed that under the subject of intangible property.

Q. And in this report you undertook to define going value and point out to the committee or sub-committee of the city council what it really was and what it represented?

A. I did discuss it at considerable length in this report.

COURT: Do the books carry a replacement account?

A. At the present time, no sir.

1777 COURT: Did you eliminate any items on account of replacement in this schedule?

A. Construction account, yes, which had been renewals charged into operating expenses.

COURT: To what extent?

A. I find in the year 1910 substantially $7,351.92 improperly charged to operating expenses.

COURT: That was for replacement?

A. Replacement, means that should have been charged to investment.

COURT: Where is that shown on the report?
A. Schedule 5, the one you last referred to?
COURT: How much is set over to operating expenses in the year 1908?
A. $135.07.
COURT: That is shown on schedule 5 of your report?
A. It is yes, sir.
COURT: For the year 1909?
A. $1,957.34.
Q. Where do you find that?
A. In schedule 5, of my report.
COURT: The third column?
A. Yes, sir.
COURT: For the year 1910?
A. $7,351.92.
COURT: That includes the entire year does it?
A. Yes, sir.
COURT: And from September 30th up to January 1st also of 1909, also from September 30th, 1909, to January 1st, 1910?
A. Yes, these expenditures occurred in that overlapping period.
COURT: They really occurred in 1910?
A. Yes, sir.
1778 COURT: And occurred between September 30th 1910 and December 31st, 1910?
A. No, sir; was made in the twelve months' period.
COURT: And that occurred between September 30th, 1910, and January 1st, 1910?
A. Yes, sir.
Mr. BRENNAN: Now I want to direct your attention to the balance sheet under date of March 1, 1906, at page four of your report, Exhibit 23. There you show the investment December 31, 1910, as per the company's books $3,853,975.22. Do you know what the balance sheet was say in the year 1905?
A. I have not a copy of it no sir.
Q. In making up this report did you examine the balance sheet for that year?
A. I did.
Q. Do you remember what it showed?
A. No, sir; I do not.
Q. In February 1906, is when the transfer was made was it not from the Capital City Gas Light Company to the Des Moines Gas Co.?
A. Yes, from February 28th to March first. The Des Moines Gas Company dates from March 1, 1906.
Q. Have you anything there, any memorandum showing the assets or book value of the property of the Capital City Gas Light company on that date?
A. No, sir; I have not. I analyzed that though.
Q. Can you tell the Master approximately what it was?
A. I can't give any figures except to say that the plant account of the Capital City Gas Company the last day of its existence showed

a plant investment considerably less than the items now shown on the balance sheet of the Des Moines Company.

1779 Q. Didn't it show there a book value of about $1,605,475.10?

A. I don't remember the figures. I took the construction account from 1886 and traced the charges and credits for that account down to the end of the calendar year, 1910, and wherever I found a charge to the construction account which I thought was not a proper charge to be included in the basis of investment for a case of this kind, I eliminated it so it showed a physical value of $1,928,000 roughly against its value of $3,853,000.

Q. You did examine the balance sheer for the year 1905 didn't you on the company's books?

A. I saw it. I analyzed not the balance sheet but the construction account in the balance sheet.

Q. Against that amount to which I have called your attention do you know what the liabilities were?

A. I don't recollect. I paid no attention to the amount of stocks and bonds which the company issued every year other than to include it in the final balance sheet and disregard it as an element covering value in estimating its valuation.

Q. Have you any record or memoranda under your control at this time from which you can tell the Master what the book value of the property was at the end of the year 1905?

A. No, sir: I have not.

COURT: The Des Moines Gas Company took charge of this in 1906.

A. March 1, 1906.

COURT: These totals represent the total.

A. These represent the additions for each year, this is the total at the end of the year.

COURT: You mean by that that the totals at the right hand side of the table represent the extensions do they?

1780 A. Yes, sir.

Q. For each year?

A. Yes, sir.

Q. These extensions for the year commencing February 29, 1907, and December 31, 1910, the sum total of those preceding that would make the amount?

A. It would not give the book figure, but give what I consider the fair figure, the book figure would be more than that, because I eliminate items that I thought were not proper.

COURT: This would give the book figure?

A. It would give a figure I considered fair at that time.

Q. On this schedule 1 of Exhibit A, at the opening of the balance sheet March 1, 1906, you have listed under assets property purchased $3,592,723.24. Now will you say to the Master, that the balance sheet at the close of business of the Capital City Gas Light Company showed property of a book value of that amount?

A. It does not. It shows property of a valuation less than this amount.

Q. How much?

A. I don't recall the exact figure, but quite a considerable amount less.

Q. How much water was put into it at that point, can you tell?

A. Just what do you mean by water?

Q. I want to know what the balance sheet was at the close of business of the Capital City Gas Light Company on the 28th day of Febru-ry, at the close of business the 28th day of February 1906, how much did the value of the property increase from 12 o'clock that night until this balance sheet was opened the 1st day of March, 1906.

To the best of my recollection the opening entry of the Des Moines Gas Company shows a plant valuation of approxi-
1781 mately one million dollars in excess of the socalled book value at the close of the existence of the Capital City Gas Light Company.

Q. You mean now it represented an actual investment in property that was substantially or approximately a million dollars?

A. No, sir; it did not represent an investment, that is why I eliminated it from my analysis of the construction account.

Q. The books showed there had been put into the business approximately a million dollars, isn't that truth of it?

A. The adjusted balance sheet for the opening of the business of the new company shows——

Q. I am not asking you about that, I want to know if it is not the truth that the books showed at the close of the business of the Capital City Gas Light Company the 28th of February 1906 that the actual investment in property was approximately a million dollars?

A. I don't remember it, I don't think so.

Q. Don't you remember it was approximately a million dollars?

A. No, sir; I don't recall the figure.

Q. And with the working capital in there included was about $1,156,000 something like that?

A. I don't remember it.

Q. Can you get that balance sheet and refresh your recollection on that subject.

Objected to as not cross examination and in that connection we will say that these books that they are talking about are now being examined by their expert so there is no question about their not having this information, if they want it, I think they ought to get it instead of trying to send this man to work for them.

1782 Q. Why did you start out in this report by showing this particular balance sheet, what is the purpose of it?

A. That is the beginning of the business of the Des Moines Gas Company.

Q. Then you wanted to show and have the Master understand didn't you that the books of this company showed an investment up to and including December 31, 1910, of $3,853,974.22 didn't you?

A. Emphatically no, because if I had I would not have presented

the Master as I have explained three times the investment in the books through analysis of the construction account as $1,928,016.

Q. What was the significance of placing the balance sheet in here?

A. Because that is what the books show but this is what I found upon analysis.

Q. That is the question I want you to answer, you did want the Master to know that the books showed an investment of $3,853,-975.22 didn't you?

A. I wanted to present to the Master an actual statement of the company's books but supplement that with my analysis of the statement and that it was not the valuation of the property there in question?

Q. If you want to be eminently fair to both parties why didn't you in connection with the balance sheet show the Master the condition of the Capital City Gas Light Company the immediate predecessor of the complainant company at the close of its business on the 28th day of February 1906?

A. Because in the analysis of the balance sheet for reproduction in my report I had to begin somewhere and the logical point was to begin with the beginning of the history of the Des Moines Gas Company. I made my analysis of the construction account in this balance sheet not only the last year of the Capital City Gas
1783 Light Company, but back to 1886 and through that analysis I eliminated every item which I consider was not the fair valuation excluding what you choose to call water.

Q. You went back to 1887, as far back as you could get trace of the investment, trace of these extensions and trace of the manufacturing plant and history of it and all these things?

A. I did.

Q. Why didn't you go back of 1906 in connection with your investigation of the books for the purpose of showing the trial balance when you were not pursuing the reproduction theory?

A. Because I attach very little significance for rate making purposes to the book cost as shown in the company's balance sheet. I believe that should be analyzed and eliminated if there have been any items which were not proper construction charges and I found such charges.

Q. But you have said in carrying out your theory and in arriving at the value of this investment that it is highly important to have the actual expenditures of the company and the books of account to show the amount actually invested, you said that haven't you?

A. Exactly and in accordance with that I produced this company's analysis and not merely the book figures.

Q. If it is the fact that at the close of the business the 28th of February 1906, the investment, according to the balance sheet showed approximately $1,000,000, you considered that didn't you in arriving at the valuation of this investment, didn't you consider that?

A. To this extent that I went through the year 1906, the last year that is up to February 28, 1906, I went through that year just as

I went through every year preceding and following in the
1784 analysis of the construction account. I saw the company's book cost and I have carried forward my analysis construction cost. I would find that the company would charge an amount say of $25,000 to construction and I made inquiry as to whether that was a legitimate construction account for the purposes of this case and satisfy myself it is not. I therefore correct my construction and analyzed the total record forward eliminating that item. The next year the company makes an additional item of construction and I analyzed that and see whether it should be eliminated or not and so that way I perform what you have in your mind in wanting to present to the Master the cost of the property rather than the book statement of the property.

Q. What did you find was the investment of the Des Moines Gas Company on the 31st day of December 1910, at the close of the calendar year 1910?

A. $1,928,016.65.

Q. Now have you information for the Master so that he may know what you found the investment in the property was actually on the 1st day of March, 1906?

A. Do you mean the actual investment as opposed to the book cost on that date?

Q. Yes, as determined by you.

A. That would be the total of all the amounts in the last column preceding the total for the year 1907 or to deduct from the total at the foot of the column the last five items.

Q. If you will turn to Schedule 1 of Exhibit "B" you have shown there the totals have you not of the expenditures of the Capital City Gas Light Company from June 30, 1886, down to and including February 28, 1906.

A. Yes, sir.

1785 Q. And under the column headed "Totals" you have left a space between the business of the Capital City Gas Light Company and that of the Des Moines Gas Company?

A. There is a space there.

Q. These items have a relation to the business of the Capital City Gas Light Company represent extensions and improvements, street lamp extensions, extension of street mains, meters and services, everything in connection with their business.

A. Yes, sir.

Q. Now I wish you would follow me. I have taken the totals of the Capital City Gas Light Company from the period to which I have called your attention and I find that these figures shown in this column total an aggregate of $1,117,655.89. I wish you would run over those figures and see if that is correct?

A. I get the same figure you have, $1,117,655.89.

Q. Now the credits that are shown in the 4th column, were those corrections made by you or are these credits shown upon the books?

A. They are on the books as I recollect it.

Q. That was the close of the business February 28, 1906?

A. Yes, sir. That represents my detailed book cost and not the

company's book figure. The company book figure was larger than that.

Q. How much larger?

A. I don't remember, must have been larger because I have eliminated a number of items in earlier years.

Q. Was it in excess of $1,165,230.09?

A. I don't remember the figures because I have not the record of the amounts I scheduled.

Q. It is a fact isn't it so far as the company's books are concerned and the value of the investment shown thereon your figures
1786 and your computation don't differ materially from those shown upon the books up to that point?

A. I have made some deductions, I don't recollect now what they were because I paid no attention to the company's book figures, but took the actual cost for rate making purposes.

Q. Your exhibit "B" shows all extensions, mains, meters and services covering the period from 1886 to 1906 is this amount $1,117,855.89?

A. Yes, sir.

Q. Now I wish you would take the years 1907, 1908, 1909 and 1910 and analyze those for us, tell us what they represent.

A. Actual charges to construction during those years in question.

Q. As shown by the company's books?

A. As shown by the company's books and after eliminating what I believe were not proper construction charges.

Q. The total to which I have called your attention is $1,117,-655.89.

A. Yes, sir.

Q. And the next column that is the business of the Des Moines Gas Company, the next item for the 12 months ending February 28, 1907, starts out with the figures $289,943.78. Now does that represent the amount of money expended by the company during that year for extensions?

A. It represents the amount of money expended and the value of the property added to the plant during the 12 months ending February 28, 1907, that amount being for extensions and improvements in the first column, Schedule 1, of Exhibit "B".

Q. Have you any way of telling us, Mr. Hagenah, just how many miles of mains, for instance were laid in that year?

A. No, sir; I have no record of mains.

1787 Q. Do you — — what works improvements were made?

A. No, I don't recall the individual construction operations carried on during those years.

Q. This $289,943.78 which is the first amount that you used in connection with the Des Moines Gas Company's business, in this inquiry, I would like to have you analyze that for us and tell us just exactly what it represents?

A. That represents expenditures for actual property added to the plant that I have placed the amount of $285,000 for property received and added to the plant during that year.

Q. Can you itemize it and tell us what property?

A. No, I can't recall the individual items of property making up the total items of charge that year.

Q. Can you get it for us?

A. It is all on the company's books your men are working on I suppose.

Q. You say that on the books everything is there representing what this $289,943.00 represents, you say it appears on the company's books?

A. It appears there though every item on the company's books is not gone into in detail like every other item. I received all my information from the books and records.

Q. That appears to be there much larger than the items following?

A. Exactly because that year the company added more property to its plant.

Q. Just what I want to know, I would like to have you give us the items or a statement of that particular item.

A. I can give some of the items I recollect.

Q. Give us some of them?

A. One of the items is the large million foot holder.

1788 Q. When was that million foot holder constructed?

A. I don't know when it was constructed, but this is the first time I find it in the records in the charges for 1907.

Q. When did you first see that account on the company's books?

A. In the opening of the company's books on February 28, 1907.

Q. So then it must have been constructed in the year 1907 to be properly in that account?

A. It is possible it was constructed earlier than that.

Q. It would appear in some of these other accounts?

A. Not necessarily unless the construction account covering this particular operation was closed into the plant account in that year.

Q. You have gone back to 1886, you have endeavored to show here the extensions of mains and the street lamp extension and street main and you have endeavored to show by this table the value of the investment covering this period. If that gas holder were considered or had been constructed back in some of these other years, can you explain why it should go into that account after February 1907, or covering that year?

A. Yes, sir. An item is not always put into the construction account at the day when the construction is begun. The policy in regard to that is to receive authority to undertake a particular piece of construction and during the construction of that article the expenditures in connection with it are charged to the particular authorization or work order and when it is completed it is closed into the construction account as it appears in the company's balance sheet. New construction may continue over a period of six months or a year or possibly longer and it will appear on the company's books as an addition to plant when the authorization or work

1789 order is finally closed into plant account.

Q. Of course I take it you have no personal knowledge or any information with respect to this particular item?

A. I have this much knowledge that the Des Moines Gas Com-

pany began business on March 1, 1906, taking over the business of the Capital City Gas Light Company and various other properties inclusing the Valley Junction property. The consolidation which took place really represented three forms in which the Capital City Gas Company was one specific item, the Valley Junction property, as I recall that and various other property then in course of construction which was closed into the accounts and first appears on the books of the new succeeding company, the Des Moines Gas Company.

Q. You can bring in I take it, Mr. Hagenah, tomorrow morning a list of these items that is $289,943.78 and the items which follow in that column.

A. I could bring in only what appears on the company's books and your men are working on that.

Q. You say as I understand you, these are not the exact amounts as shown by the company's books, your valuation?

A. The company's books for any one year may show a considerable more than the amount my figures show.

Q. That is what I want to get is the memorandum or data upon which you arrived at these amounts. I refer now to these figures in the business of the Des Moines Gas Company covering the period February 28, 1907, to December 31, 1910, under the heading extensions and improvements.

A. I don't know what specific items enter into a charge for property embracing a number of items at any one time. The books do not show that.

1790 Q. Do/'t the books show the amount expended for the purpose referred to in that column for that year?

A. Yes, with the detail which I give here and when I found that item it was so large my curiosity was aroused and I asked what were these specific items which went into this construction account.

Q. Have you got those?

A. No, sir.

Q. Where are they?

A. I haven't them.

Q. What did you do with them?

A. I never got them.

Q. From whom did you get your information?

A. Officers of the company.

Q. Is there anything on the books to show?

A. They do not refer to the books of the company. I asked for what construction there was to make that item so large and one of the items to which I was referred was the million foot holder. Another item to which I was referred was one and I think two parcels of real estate at that time which are inclusded in here. You will see my table has no solumn for land. I have put land in with improvements or extensions.

Q. That $289,943.78 includes something for real estate?

A. It does.

Q. How much?

A. I don't know. I don't know the value of the property and don't know exactly how much they paid. The cost might appear

upon the books but the cost of several articles, and I don't know how much each particular article was worth.

Q. The sum total of all the items would aggregate this sum, $289,943.

A. I might give the items going to make up one large
1791 item in that column amounting to $285,000. I don't remember what the other scattered items were to make up the other $4,943.

Q. The information you received in regard to that item was from the employés or officers of the company and not from the books themselves?

A. No, sir. The books show it in one item to the amount of $285,000 but I don't know what made up that.

Q. One *time* was the million foot holder?

A. One item was the million foot holder and another item was one and I think two parcels of real estate at that time. Now I also think there was included in that certain property in Valley Junction.

Q. You went over the inventory Exhibit 15 did you?

A. No, sir; I have not seen the inventory.

Q. Was it every furnished to you?

A. No, sir; I may add in explanation of my answer if it is proper, the reason I did not go into the proper value to be allowed for either one of these items was because of the fact there was an inventory and valuation here. Now if the holder is included in the $285,000 I respectfully suggest that one way of finding the reasonable co-t of that would be to refer to the appraisal and see what a holder is worth and what is the value of such parcels of real estate.

Q. Of course I thank you for the advice, but have you found upon the books of the company any record showing the several items going into this $285,000 item which went into that item?

A. Not detailed on the books, no sir.

Q. You relied upon the information that was furnished you by the employés or agents of the company?

A. Yes, I was informed that the holder and certain real
1792 estate and certain property in Valley Junction was included in that total charge.

Q. Now I would like to have you tell us just what items of property are included in the extension and improvement *ad*count as detailed in Schedule 1, Exhibit "B"?

A. In general all the property in the company's inventory and property which it possessed consisting of street lamps, mains, meters, services, to be specific, it would include land, buildings and making apparatus and holders.

Q. How about the furniture and that sort of thing?

A. That would be included.

Q. Take page 43 of Exhibit 22, being the table showing annual investment on the 8 per cent earning basis I believe you have stated that you computed the depreciation on a percentage of two per cent?

A. And two and one fourth, also.

Q. Where did you adopt the two per cent basis, where is that shown in this report.

A. It is not in there. I completed that work after I came here. I checked over my figures and came to the conclusion that the amount I used at the time I worked up this report was too high.

Q. Have you undertaken to compute what that depreciation would have amounted to at this time on a basis of two and three fourth-per cent compounded annually?

A. No, I think that is too high, I would not want to be quoted as favoring that now.

Q. I say did you?

A. I did not.

Q. I want to know if you computed the amount that ought to have been on hand on that basis?

1793 A. I did not.

Q. Did you compute the amount which would be represented in that fund on a two and a half per cent basis?

A. No, sir.

Q. Let us have the tables which you did use. Before we take up an analysis of the tables which you have prepared, I would like to ask first which of these amounts you stand on? You start out with two and three fourths, two and a half, two and a fourth and two per cent.

A. I favor the lowest one which is two per cent showing a valuation of $3,136,241.

Q. When did you reach the conclusion that two per cent was a proper amount to use?

A. I am not perfectly satisfied as to that yet. I have not had all the information which I would want to thoroughly analyze what constitutes a proper depreciation rate. In the absence of that and in order to be conservative I took what I thought was a conservative figure of two per cent.

Q. Circumstances and further investigation might cause you to change even the figure of two per cent and adopt something lower?

A. I might upon further information arrive at some other figure but from the information which I have had so far my best judgment is two per cent on the depr-ciable property.

Q. On a sinking fund basis what results or what amount would we have if we used one per cent compounded for forty years?

A. I don't know what it would amount to. I have not figured it out. If I had had tables showing the life of all the classes of property and ages so I could compute the composite life and composite age I would have arrived at a figure probably different from two per cent but not very far from that.

1794 Q. Well then as far as your report here, or in arriving at the value of this investment, you are willing to concede you were too high when you figure on the two and three fourths basis and two and a half basis?

A. I think those are too high.

Q. When did you make up the tables, Exhibits 25 and 26?

A. During the last week or ten days.

Q. Was it since you heard the testimony of either Mr. Baehr or Mr. Lea?

A. No, sir; I came to that conclusion entirely independent from anything that was said here. I didn't hear their testimony on that.

Q. I simply wanted to know if you learned through their testimony or from other reports the composite life or age of this plant as they had computed it?

A. I did not hear their testimony on that and don't know what their judgment is on that.

Q. Then even the tables, Exhibits 25 and 26, do not represent your judgment after a careful and painstaking investigation of the amount that should be charged off for depreciation?

A. Yes, they represent my present best judgment but I have not the information to arrive at the depreciation rate as I compute it in other cases. If I had that information I would arrive at the rate and then compute the table in the same way substituting the rate and I have analyzed the depreciation rate in other cities under conditions very much similar to those here and there I found a rate substantially two per cent as being sufficient, being near enough accurate for all practical purposes.

1795 Q. This table shown at page 42 of Exhibit 23, shows that on the two and a half per cent basis you reach a value of the plant at the close of the year 1910, of $3,343,794, that is on the two and a half per cent basis whereas where you reduce that to two per cent you secure as a final result, $3,136,241. In other words the substitution of the two per cent for the two and a half makes that difference in your final results.

A. Yes, sir.

Q. And where you adopt and use two and three fourths per cent as the basis of your calculations, you procure a sum of $3,484,586 so that it makes the difference between that and $3,136,241 a difference there of about in round numbers $300,000?

A. Yes, sir; and the lowest figure represents my best judgment as to the valuation to be allowed. The others were merely early computations from insufficient data.

Here the further hearing was adjourned until 9:30 a. m. tomorrow.

1796 Tuesday Morning Session.

AUGUST 8, 1911—at 9:30 a. m.

All Counsel for the respective parties present, except H. W. Byers, Esq.

Testimony on part of Complainant resumed as follows:

WILLIAM J. HAGENAH, re-called for further cross examination, examined by R. O. Brennan, Esq., testified:

The MASTER: Just one question as to schedule B. If I recollect

correctly you told me that the total last column did not include the working capital?

A. That is right; it does not include it.

The MASTER: Do you remember what the working capital was at the beginning of 1887—turn to page 43, there is a difference in the first column and the last column in Schedule B, working capital?

A. There is, and it amounts to $13,600.

The MASTER: And you found the working capital at the close of 1910?

A. Approximately $128,000.00.

The MASTER: But that is not included in your totals here?

A. It is not included in schedule B, Exhibit 1.

The MASTER: Do you include in that exhibit working tools and office equipment?

A. Yes, sir.

The MASTER: All but the working capital?

A. All but the working capital.

Mr. BRENNAN:

Q. But your final figures include working capital, do they not, showing the value of the investment?

A. They include the working capital, yes, sir.

1797 Q. Do you know how much you have included as working capital?

A. I included for the year 1910, $128,000.00.

Q. Where is that shown, in what total is the working capital shown?

A. That will appear in the third column of the table on the analysis of the investment value on the eight per cent basis.

Q. Third column, addition to plant including working capital?

A. Yes, sir. The amount of $128,000 is built up in thay column.

Q. And just what items do you use as representing working capital?

A. I arrive at the working capital from analyzing the current asset and liability items in the balance sheet at the close of any particular year.

The MASTER: To get total assets, schedule B, you have to add $128,000?

A. Yes, sir. That is not asset but the cost; there are other assets; That is cost of the plant plus working capital.

Q. Schedule 1—assets and liabilities December 31, 1910; is that the statement from which you made up the item of working capital?

A. For that year, yes, sir.

Q. Do you consider inventories, $77,410.46; is that part of the working capital acocunt?

A. It is, yes sir.

Q. And accounts receivable, $53,627.46?

A. Yes, sir.

Q. And the item of cash, $49,434.15?

A. Yes.

Q. I wish you would take these account-, Mr. Hagenah, and follow me, see if we understand each other. Take the amount of $77,410.46 and the next item, accounts receivable, $53,627.46—will you put down the figures please—and $49,434.15. Now the aggregate of those figures or total is how much?

1798 A. $180,472.07.

The MASTER: What is that?

A. That is the sum of the amounts shown in the balance sheet for 1910 for inventories, accounts receivable and cash.

Q. Now what do you do with account payable and bills payable?

A. You mean in arriving at the working capital?

Q. Yes.

A. I would deduct those items.

Q. Now those items amount to, bills payable $14,000; accounts payable $39,607.29, and the total amount is $53,607.29—is that right?

A. Yes, sir.

Q. That is to be deducted then from $180,472.07?

A. Yes, sir.

Q. And what is the amount after making the substraction?

A. $126,864.78.

Q. Now what do you do with taxes?

A. I don't consider taxes working capital.

Q. You don't consider taxes as working capital?

A. No, sir.

Q. Do you deduct taxes from the amount which you consider for working capital?

A. I pay no attention to the item of taxes in computing the working capital?

Q. Why not?

A. It does not appear in the balance sheet as being an item involving the use of funds other than as it appears in the expense statement of profit and loss.

Q. Where do you get the other two thousand, approximately two thousand?

1799 A. I add to that amount $905.20 which is unearned insurance and represents the payments for insurance in the form of premiums for several years in the future.

Q. Is that shown on the balance sheet?

A. It is.

Q. This $905.20 on the unearned insurance?

A. Yes, sir.

Q. You say you paid no attention to taxes?

A. I have not in the preparation of my working capital statement.

Q. What accounts are included in the item of accrued accounts amounting to $58,817.07, shown at page 3 of your report?

A. It includes taxes and interest.

Q. And at page 13, schedule 1 of Exhibit 1, you show accrued taxes?

A. I show the details there, yes, sir.

Q. Did you get the detailed information with respect to the items we were talking about last night, Mr. Haganah?

A. Which items do you refer to?

Q. The first item of your table at the commencement of the business of the Des Moines Gas Company?

A. Details of the item $285,000?

Q. Yes.

A. No, sir; I did not understand that you asked me to get any additional information on that.

Q. I asked you to get us the detailed information by which you arrived at that amount of $285,000, in round numbers.

A. That is the item which we were discussing. The details of that are not on the books and I got my information through inquiries. I told you yesterday what items were included in it, but as to the particular value to be attached to any specific item, I am unable to say. As far as I know it included the million cubic feet
1800 holder, one or two parcels of real estate, certain property in Valley Junction and a 100,000 gallon oil tank on the premises of the company.

Q. Now, let me understand you—the additions to plant from 1886 to 1910, both inclusive, your final totals are $1,928,016.65; that you say is the value of the investment?

A. No, sir; I say that is the cost of the property.

Q. Does that include any working capital?

A. It does not.

Q. Where you used extension and improvement in the first column what items are covered by extensions and improvements?

A. It includes all the property of the—that is, of the physical property of the Des Moines Gas Company and the Capital City Gas Company during the years shown on this table, except the street lamp extension property, mains, meters and services. Some of the specific item- included in that column are land, building, manufacture equipment, holders, oil tanks, etc.

The MASTER: What does it exclude?

A. It excludes the street lamps, mains, meters and services; everything else is included in the first column.

The MASTER: It excludes the street lamps?

A. Yes, sir; street lamps, mains and the street service pipes.

Q. Can you give us the detailed information with respect to the item of $32,781.82?

A. No, sir; I haven't those details with me.

Q. Did you include anything for discount on bonds?

A. No, sir; not to my recollection.

Q. Have you anywhere in this report considered that?

A. I have not.

Q. You make no allowance for that in any way in your report?

1801 A. I do not recall that there is any allowance in this report for discount on bonds.

Q. Well, in a general way, Mr. Haganah, can you tell us what you considered in this $32,781.82?

A. That would represent the additions to property in the form of lands, buildings, manufacture equipment holders and oil tanks during that year, if there were any—I do not recall what items of that character were added that year.

Q. These are all the items included in that amount $32,781.82?

A. Yes, sir; items of that character would be included in that amount.

Q. Are there any other items that you have not specifically mentioned?

A. I do not recall any.

Q. Now the next is February 28, 1909, $13,881.29; what are the items which are used to arrive at that amount?

A. They are items of the same character as were included in the same column for the preceding year.

Q. And that is true of the item $44,699.80 immediately below?

A. Yes, sir.

Q. And also of the item $23,470.09?

A. Yes, sir.

Q. And those amounts represent for the respective years the additions in the way of real estate or to the apparatus or buildings of the physical property of the company?

A. At the works, other than street lamps, mains, meters and services.

Q. There is no working capital or discount on bonds or accrued taxes or anything of that sort included?

A. No, sir; only physical property.

Q. Now, Mr. Haganah, to what extent did you go into the books of the company to get this information?

1802 A. I made a thorough audit of the company's books for the last few years. I believe my assistants covered five years in their detailed analysis of all the vouchers and authorizations, of which I personally examined every charge during the year 1900. We went further than that analysis of the construction account from the Company's ledger from 1886, as shown by Exhibit B, schedule 1, in my report. Wherever an item was classed into the construction account, as shown by the ledger, the details of that item were called for, examined and carefully analyzed. Wherever an item was charged to the construction account which I believed was not a proper charge to include in arriving at the cost of the property in a rate case, I excluded it.

Q. In other words, you made up a new set of books for the purpose of this report?

A. Not exactly that. I eliminated from what they called their construction account items which I think are not proper construction account; I have not altered their books in any way.

Q. Could you give us a list of the principal items which you changed so as to conform to this report?

A. I have not such a list with me; I could tell you in general the items which I excluded.

Q. Very well.

A. Expenditures made by the company in the form of investments, that is, for property not used and useful in a public utility; that is one character of items excluded.

Q. Do you remember the amount of that item and the character of the property?

A. I am not sure about that. That item appears on the Company's books.

Q. Well, give us an illustration as to property acquired
1803 which is neither necessary nor useful in the complainant's business?

A. I do not recall any specific item now, not having my data with me to refresh my memory.

Q. Well do you know anything about the amount of such an item as you have suggested?

A. In that particular case the amount was not large.

Q. About how large?

A. I think I am safe in saying it was not in excess of $4,000 or $4,500.

Q. Now was that real estate or personal property?

A. That I am not sure about.

Q. Can you, Mr. Haganah, furnish the Master the data for use a list of the items which you rejected?

A. You- accountants are at present engaged in making that very same analysis and doubtless have completed by this time the list which you desire.

Q. That hardly answers my request.

A. It would take a good deal of time, Mr. Brennan, to go back over these records and get the items which you desire.

—. About how many items were there that you considered erroneous and rejected?

A. I don't remember how many.

Q. About how many?

A. I would not hazard a guess.

Q. How much did the items aggregate?

A. The difference between the amount shown as the total in the last column in schedule 1, Exhibit B, which is $1,928,016.65 and the plant account shown in the balance sheet as of December 31, 1910, which amounts to $3,853,975.22.

Q. Can you give us a list of the large items?

1804 A. I can not.

Q. Haven't you any memoranda of that?

A. Not with me, no sir.

Q. When was this complete audit made of the books?

A. My report was completed on March 8th, 1911, and the audit was made during the month or six weeks immediately preceding I have since I have been in the city continued my work upon the Company's books.

Q. Do you maintain offices in the city of Chicago?

A. I do.

Q. And how many assistants do you have?

A. At present I have six, I believe.

Q. How many did you have in the month of February?

A. About seventeen at that time.

Q. They were working in connection with this Chicago report, were they not, most of them?

A. Yes.

Q. How many of them were assigned to the work of the Des Moines Gas Company?

A. Those who were assigned to the work of the Gas Company were not working for the city of Chicago.

Q. How many had you assigned as your assistants in connection with the Des Moines Gas Company work?

A. For about five or six days there were five people besides myself.

Q. What are their names?

A. Mr. Honnicker and Mr. Wellman. I am not sure now about the names of some of the others; I can explain why. We were completing about that time our analysis of the books and engineering records of the People's Gas Light & Coke Company, and when any person completed his work on the Gas Company's record, he
1805 was dismissed from my employ because I had no further work for him. When this work appeared, instead of them leaving me entirely, they were assigned to work of this kind, and they stayed with me probably five or six days after they had completed their work for me on the Chicago analysis.

Q. Mr. Honnicker was the only assistant who came to Des Moines, as I understood you to say on Friday?

A. Yes, sir.

Q. He was here some five or six days?

A. About that time.

Q. Did you have the books of the Gas Company at your office in Chicago?

A. Not the books, but a large supply of vouchers and authorizations were sent over there for analysis.

Q. Was there anything else sent besides the vouchers?

A. Our data and analysis sheets which were prepared on the ground here.

Q. By whom?

A. Mr. Honnicker and myself.

Q. Was there any other data furnished you by the Des Moines Gas Company?

A. Not for use in connection with this audit.

Q. Well, for use in connection with your report?

A. No, sir.

Q. You first came out here in February, did you not, about the first week?

A. I see I left in my room my note book on outside work. I was working on that last night and forgot to put it in this book. As I recall it I made two visits to this city in February.

Q. You made five trips in all, as I recall your testimony?
1806 A. I don't remember, but I answered your question correctly the other day in regard to that.

Q. I think you said you were here four Sundays, came from Chicago Saturday night and stayed here Sunday and left Sunday evening, and you were out here five times in all?

A. I don't remember how many times; I was here every time on Sunday except once.

Q. Mr. Honnicker was here some five or six days?

A. About five days.

Q. And in that length of time, you told the Master, you succeeded with Mr. Honnicker as your assistant to make a complete painstaking auditing investigation of the books and records of the Des Moines Gas Company covering the years from 1886 down to 1910 inclusive?

A. No, sir; we done nothing of the kind.

Q. Tell the Master what you did do?

A. We made an audit of the last few years in which we did analyze every item and analyzed the construction account of the ledger from 1886 to the end of 1910. Such work as we did not complete in this city we completed in Chicago. I had at once time five or six of my own people at work, and while working in this city both Mr. Honnicker and myself, whether we worked alone or together, we had the services of the employes of the Des Moines Gas Company who were familiar with handling the books and in bringing to us the books and records which we called for, so that we were not compelled to spend any time in searching through the vaults and shelves for records. As soon as we found it necessary to examine any particular document it was asked for and the party who was most familiar with that was assigned to get it for us and kept us supplied
1807 with everything we needed. We worked more than what you might assume would constitute a day; we began our work about eight o'clock and worked until about midnight.

Q. That is as definite, Mr. Haganah, as you desire to answer the question?

A. Yes, sir; that is the way in which I would describe it without specific memoranda or data.

Q. What years did you investigate and thoroughly audit?

A. Mr. Honnicker was instructed to audit all the records of expenditures and to verify the balance sheets and to prepare trial balances to see if the books were in balance and I analyzed the items in the trial balance to satisfy myself of their correctness during the history of the Des Moines Gas Company; that is the best of my present recollection.

Q. Those were the instructions to Mr. Honnicker now?

A. Yes, sir; and he brought to me the working sheets covering the analysis for the record at that time.

Q. Did you go over the records and verify them in any way?

A. Yes, sir, I did. I applied such checks and study of his records as I ordinarily do in analyzing data which are brought to me in the course of my work.

Q. Now, this depreciation account, Mr. Haganah, have you considered what the amount you have computed here on the basis of two per cent. invested at eight per cent, would amount to at the end of 37 years?

A. No, sir.
Q. Can you figure that up in a few minutes?
A. No, I can't. I can tell you why I did not do it.
Q. Tell us why you didn't.

A. Because no depreciation reserve would be permitted
1808 under practical conditions to accumulate for that length of time. A plant is constantly depreciating; to offset that depreciation the Company is required to set up a depreciation——

Q. Now——

Mr. GUERNSEY: I submit that the witness be permitted to answer the question.

Answer continued. That reserve is built up by crediting it each year with the amount representing the estimated annual depreciation during that period, which amount is included in *in* the operating expenses as one of the expenses of the business. Now, since depreciation is going on constantly and replacements must constantly be made, these replacements will be charged against the depreciation reserve which was credited to meet these renewals by an amount representing the estimates in the annual depreciation. Consequently under normal conditions the depreciation credit which has been charged to operating expenses will each year be exhausted by the charge for replacements. Under normal conditions the depreciation each year will not be the same as the estimated depreciation. Some years the replacement will be made to a heavier extent than other years, and it is possible at sometime you will have a debit balance and at other times accumulate a credit balance. The balance does never accumulate to the amount of eight per cent or any per cent on that credit for the period of thirty years. If that were so you would have at the end of the normal life of the property a balance representing the value of the property, and you would have no property. Therefore since your plant for all practical purposes in supplying the public with service can not depreciate below about seventy-five per
cent before the service is seriously impaired, your depreciation reserve could never reach the point you have in mind.
1809

Q. Did you go over the history of the plant and over the vouchers to test out that theory to see just what replacements had taken place the last five or six years?

A. Not for that long a period. I tested the company's books for about two years to see what its policy had been with respect to the renewals and the accounts charged.

Q. Now, Mr. Haganah, what replacements if any are there not included in the $1,928,000.

A. There are no replacements included in the $1,928,016.65.

Q. What about operating expenses?

A. They were included in 1910.

Q. To what extent have you got detailed information on that?

A. Schedule 5 of my report shows that there was incorrectly included in the operating expenses for 1910 the sum of $7,351.92 against which there should have been a depreciation allowance as shown in the same schedule.

Q. What schedule is that?

A. Schedule 5 of my report.

Q. Page 22, is it?

A. I don't know the page; my report is not paged.

Mr. GUERNSEY: Yes, it is page 22.

Answer continued: It is the last item in the third column on that page.

Q. What replacements have occurred in the last 24 years?

A. That I don't know.

Q. Did you try to ascertain?

A. I could not determine it.

Q. Was there any expense that you have not included either in this $1,928,000. or in your operating expenses?

1810 A. For which year?

Q. The entire period of twenty-four years shown on this report?

A. Yes, the expenses I referred to a short time ago as being made and charged to the construction account, but which I eliminated as not being proper construction charges for the benefit of this case.

Q. What were those items?

A. I do not recall them.

Q. Outside of these items, Mr. Haganah, were there any other charges not shown in the operating expenses or in the totals which you show here amounting to $1,928,000.

A. I have been trying to think of some; I can't recall now; there may have been some; I can't recall now.

Q. These items which you rejected as not belonging to the construction account do they represent replacements?

A. No, sir.

Q. What do they represent?

A. They were in the form of adjustments in the books to recognize the changed conditions. A specific instance of that kind, is what you had in mind yesterday afternoon in comparing the construction account in the balance sheet at the close of the history of the Capital City Gas Company with the construction account of the first balance sheet of the Des Moines Gas Company.

Q. I would like to know if you can tell us just what items you rejected as being improperly included in the construction account?

A. They represented expenditures for property of an investment character, as I told you a few moments ago, the expenditures for property which may at one time have been used or purchased with the intention to use it in the gas utility, but not actually

1811 so used.

Q. You know that?

A. I know there were instances, or at least one instance of that kind.

Q. Let us not deal in generalities so much; you rejected certain items which you found as being improperly charged in the construction account; now you had some reasons for rejecting those items, did you not?

A. Yes, sir.

Q. You thought they did not properly belong there?

A. Yes, sir.

Q. You say they did not represent replacements?

A. Yes, sir.

Q. Now, can you remember just what it was and won't you please tell us?

A. We got so far yesterday to show that the total———

The MASTER: Can you tell; say so, if you can't.

A. I cannot without referring to other data.

Q. What other data must you refer to in order to tell us just what items you excluded from the construction account.

A. The Company's ledgers.

Q. And by looking at the Company's ledgers you would be able to tell us?

A. I could cover the ground I covered in the first place and I am confident would eliminate the same items now I did then.

Q. Did you have any personal information outside of that shown on the ledgers or books of the Company?

A. Only with respect to the item of $285,000. which you discussed for some time yesterday.

Q. That you know all about of your own personal knowledge?

A. The information was given me after I inquired for details.

Q. Just mere hearsay so far as you are concerned per-
1812 sonally?

A. Exactly.

Q. You have not worked for the Des Moines Gas Company before February 1911?

A. No, sir.

Q. You have never been in the employ of the Des Moines Gas Company prior to that time?

A. No, sir.

Q. Do you remember talking with Mr. MacVicar in Chicago concerning this case?

A. Yes, Mr. MacVicar called on me one day.

Q. Do you remember when that was?

A. About the 22nd or 23rd of May.

Q. And Mr. MacVicar talked with you concerning securing your services for the city of Des Moines in this case?

A. Yes, sir.

Q. I believe you told him, did you not, Mr. Haganah, that two or three years before that you had performed some services for the Des Moines Gas Company. While you would be glad to take up the work for the city, you would have to get some sort of a release or felt that you should from the Des Moines Gas Company, or that in substance?

A. I didn't tell him anything of the kind. I never had any connection with the Des Moines Gas Company until this matter first came to my attention.

Q. Did you tell Mr. MacVicar that or that in substance?

A. You have included two questions; if you will separate them——

Q. Did you tell him that or that in substance?

A. I didn't tell him anything of the kind. I told him in substance all of a part of your question and nothing like the other part.

Q. Why are you dodging, why don't you tell us what he
1813 said to you and what you said to him.

Complainant objects to the form of the question and the suggestion to the witness that he is dodging, as being absolutely unwarranted by anything the witness said on the stand.

Q. Mr. MacVicar talked with you about serving the city of Des Moines in this case?

A. Yes, sir.

Q. And you said to him, did you not, that about two years prior to the date of this conversation you had performed some services for the Des Moines Gas Company and that you did not feel at liberty of entering into a contract with the city without first explaining the situation to the Des Moines Gas Company.

A. Absolutely not, in the slightest degree.

Q. Or that in substance?

A. No, sir. We discussed the Des Moines Gas case but nothing like what you say.

Q. There was nothing said about why you wouldn't work for the city without first getting their release?

A. That is a different matter. Mr. MacVicar came to me on the 22nd or 23rd of May and asked me if I could assist the city of Des Moines in this case. My report to the Des Moines Gas Company is dated March the 8th, and I told him I had made an audit of the Gas Company's books and for that reason I felt that I could not serve the city of Des Moines, telling him if it were agreeable to the city and to the Des Moines Gas Company I would gladly make an audit and submit this to the court for the examination of any data which both parties would agree to. That in the absence of the
Des Moines Gas Company agreeing to such an arrangement
1814 I could not accept any other services.

Q. Did you tell Mr. MacVicar at that time and place that you were then in the employ of the Des Moines Gas Company?

A. I do not believe I did. I was not in the employ of the Des Moines Gas Company at that time.

Q. Did you tell Mr. MacVicar you had made a report for the Des Moines Gas Company or the United Gas Improvement Company?

A. I don't remember that I used the word report. I told him I had made an audit of the Company's books and I had been in Des Moines to do that, and for which reason I felt it would be improper for me to accept the service of the city of Des Moines in the case against the Des Moines Gas Company unless both sides knew the character of my services.

The MASTER: I want to call your attention to page 30. There is $7,251.92; I see it there twice. Is that a duplicate charge?

A. No, it is one charge. I analyzed it on page 30 showing that of the total amount $7,351.92, the sum of $6,087.17 was really incurred for replacement purposes and should not have been called a maintenance charge, and that the larger sum also included $1,264.75 which should have been charged to the construction account and not

against the operating expenses; I have then carried forward this total of $7,351.92.

The MASTER: Evidently there is a clerical error in that; those two amounts do not agree and they should.

A. I will look at my own copy; I think they should agree. In making this copy the stenographer made a mistake. My report shows that amount should be $6,087.87; in copying it the stenographer used a nine instead of a cipher. The amount charged to
1815 replacements in maintenance for the year ending September 30, 1910. should be $6,087.17, instead of what the stenographer has shown to be $6,987.17, the nine should be erased and a cipher substituted.

Q. You were present at a meeting of the sub-committee of the city council of the city of Chicago, which was held at the city hall, I believe, on the 6th day of January, 1911?

A. I believe so.

Q. Among other proceedings had by that body was a discussion of your report that you had submitted to the Committee?

A. I would hardly call it a discussion of the report.

Q. Well what was it?

A. It represented rather an expression of disappointment over certain parts of my report.

Q. You did discuss the report?

A. I tried to defend my report against one or two criticisms that I thought were unfounded.

Q. The subject of going value was one of the very many questions that you discussed and were discussed with reference to your report?

A. Yes, there was a good deal of discussion.

Q. Let us find out if you said this—I am going to ask you if at that meeting you used this language, speaking of going value: I found that this amount was practically 23,000,000; that was so enormous that I was suspicious of its accuracy. We had a number of conferences in which the details entering into this enormous sum were discussed. Do you remember saying that?

A. I discussed the subject. I don't remember the exact words.

Q. Did you say that or that in substance?

A. Substantially that.

Q. Continuing: I found the price included an amount —
1816 which the officers were parties in interest and as appeared to me had secured for themselves, that is they took advantage of the market furnished for a franchise and found a comfortable margin of profit in it for themselves. Did you say that?

A. Substantially so.

Q. And further: Let me explain how that might have been done. A man might go to the council and ask for a franchise and there might be a very vigorous opposition, but through various means in which aldermen might be interested finally the franchise might issue on the ground that there was a reasonable cause for believing that a competing gas company in a certain district in Chicago was desirable. Did you say that?

A. Substantially.

Q. And further: Well having convinced the city authorities that there was reasonable ground for another gas company, a franchise was granted. Did you tell them that or that in substance?

A. Substantially so.

Q. Then to further illustrate your theory of going value, did you use this language: Let us assume that the actual cost of this franchise was $100,000 and that the price which the owners of the franchise ask from the company was $500,000; let us also assume now that the officers of the company which decided to purchase the plant felt that in order to relieve themselves of this competitive condition they might themselves become interested to the extent of some personal profit and that instead of paying $500,000 they might have paid $1,000,000 for the franchise, or might pay $700,000. Do you remember saying that?

A. Substantially so.

1817 Q. And further: What became of that $700,000. I don't know somebody got it. I had reason to believe some men connected with the gas company got some of it. I did not believe the people would have got an ordinance through the council because the price was very exorbitant. So I came to the conclusion which I verified to my own satisfaction that this $23,000,000 ought to be reduced by what I believed was the profits to those who have participated in the transaction. Did you say that or that in substance?

A. Substantially so.

Q. And thereafter you were asked this question, I think by Prof. Beemis: Did you make a separation so as to determine how much of that $10,000,000 represented what you talked about a few moments ago, losses of operation of those old companies before 1897? Professor Haganah: I tried to do that so far as the material which the company had was available. I believe they gave me everything they had; they were very anxious to sustain a much larger figure than I finally established. Was that question propounded to you and the answer given substantially as quoted?

A. I believe so in substance.

Q. And that so far as the Chicago report is concerned as to this going value you arrived at it upon that basis?

A. You read only a very small part of the testimony.

The MASTER: It strikes me, Mr. Brennan, this is a little collateral.

Mr. BRENNAN: I am trying to get at his theory of arriving at his going value.

Q. You found they ought to be compensated to the amount of $10,000,000?

1818 A. $10,000,000 I thought was a fair allowance for the elements which I considered.

Q. Mr. Haganah, when you state you did not take into account mains and services under the pavement in this report, do you mean you made no charge on that account?

A. May I ask whether I included in the cost of construction the

cost of pavement over mains not laid or paid for by the company.

Q. I want to know whether in this $1,928,000 anything is included therein for mains and services under pavements placed there in advance of the pavement?

A. The cost of the mains and services is in there.

Q. But as to any additional charge made by reason of the fact that the mains are now beneath the pavement or that the services are beneath the pavement?

A. No, sir; there is no cost included for the cost of pavement over mains and services not laid and paid for by the company.

Q. I would like to have you explain to the Master just how you treat pavements?

A. I have not treated it in this case. I just analyzed the construction record. Wherever the company did not pay for pavement it would not appear on their books.

Q. How much of this amount includes mains and services put under the pavement?

A. I don't know how much of the mains and services was under the pavement for which those charges went on the books.

Q. As shown by the books in the construction account, doesn't it show there?

A. No, sir.

Q. For instance, if they extend a main in a street now paved, will the construction account show that?

1819 A. Not the account itself; you would have to go further for additional information.

The MASTER: There is no way of ascertaining that so far as the evidence now is concerned excepting possibly through the evidence of Mr. Moul and Mr. Lea. Mr. Moul says about seventy-five per cent of the pavements were laid where there was no mains, and Mr. Lea's record shows, I believe, about 46-1/10 per cent.

Mr. BYERS: You mean 75 per cent of the mains were laid where there was no pavement?

The MASTER: Yes. Now Mr. Lea calculated, as I recall it now, it at 46-1/10 per cent. I am calling your attention to that because it becomes a material question in the case.

Q. So I understand you so far as the books of the company are concerned you do not include any item for street mains or services extra items growing out of street mains or services located under pavement?

A. There is no expense included for pavement which the Company did not actually incur.

Q. And if you found there had been any items of that kind showing that the mains had been put in the street before the pavement was laid, you would have considered them in your report; I mean now extra expense?

A. If there had been an adjustment of the books on account of pavement or accrued value because of pavement laid there and paid for by the city, in making a cost analysis of the plant I would have

to exclude that because the cost had not been incurred by the company.

Q. That would be true if you were valuing the investment?

A. In making a valuation of the investment upon the
1820 basis in this report, I would necessarily have to exclude it because I am dealing with book figures.

Q. I say in making a valuation of the investment and analyzing the books, records and accounts of the company you found the major portion of the mains and services had been placed in the streets in advance of the pavements you would not consider the *the* fact that since that time pavements have been constructed by the company and therefore the company should be entitled to have that fact taken into consideration?

Objected to on part of complainant as not cross examination, incompetent and because it is simply asking the witness for information which is one of the ultimate questions of law which will have to be submitted to the court.

The MASTER: There is a good deal of force in that.

Mr. BRENNAN: You take his report and it goes on to tell the *the* conditions existing——

The MASTER: Answer the question.

A. I would exclude it if I were making a cost analysis of a company's books.

Q. Why would you exclude it?

A. Because it would not appear on the books as a cost incurred by the company.

Q. Is that the only reason?

A. Yes.

Q. You have got some matters in this report not shown on the books, haven't you, and you used your own judgment as to how you analyzed it?

A. May I ask what item you have in mind?

Q. You have said that generally with respect to items that
1821 you have taken the books and records and made your analysis of them.

A. I have eliminated from the construction account certain items which do not properly belong there, and I think any accountant who has experience in public utility work would do likewise.

Q. Why would you do that?

A. Because they were not proper elements of value in a rate case.

Q. Suppose the books show in a rate case that the company had carried an account, in other words, every time the city paved a street in which the company have a main, you found that the company, every time that was done, would credit itself so much by reason of the fact that that street was paved and you were going to value this investment and came across an account of that kind, would you consider it?

A. As a book entry I would have to exclude it.

Q. Why?

A. Because the company has not incurred an expense and I am analyzing the records of expenditures.

Q. In arriving at your valuation of the investment you would have to exclude that?

A. I would, because my valuation as shown in my report is based upon book records.

Q. If you were valuing the property for rate making purposes, whether it is by this method or by the reproduction method, or any other method, would you consider, Mr. Haganah, that the company was entitled to have added to the physical cost of the property claims for extras on account of mains under pavements where mains were laid in advance of the pavement or at the time?

A. If I followed the reasoning of the court in the Consolidated Gas case, of course I would have to include the paving.

Defendants move to strike the answer as not responsive.

1822 Q. Now, Mr. Witness, just consider the reproduction method or the one which you have advanced in answering that question.

Complainant interposes the same objection last above made.

A. I must begin my answer—you are assuming a condition—if I am to reproduce this property——

The MASTER: You answered that question once.

A. Under my own method I excluded it, because I am dealing with actual cost as shown on the company's books.

Q. Isn't it your thought Mr. Haganah, and has it not been your policy wherever you have made, in rate making cases, where you have considered the reproduction method or the method you have advanced in this case, to exclude in all cases any items or claimed items on account of mains and services being under the pavement?

A. I never used the actual reproduction value of the property in a rate case; I always supplemented it with the cost data from the company's books.

Q. In your report to the city of Chicago, I will ask you if you did not treat the subject in this manner; Although strongly argued by the Company, no allowance has been made in the above total to cover the value of the pavement over the company's distribution system. It was claimed that since the valuation for the purpose of this investigation must be the reproduction cost, the company should be given credit for the value of the street pavement over all of its mains and services, even though the company paid no part of the cost of such pavement, since if the plant were to be reproduced as of this date it would be necessary to cut through such pavement for the purpose of laying the pipe. The fact- show that on
1823 many of the streets the mains were put down before any pavement was laid by the city and in many other streets the mains were laid at a time when the city was replacing the pavement, so that in either case the company was put to no expense because of the street improvement. You stated that in your report, did you?

A. Substantially so.

Q. And you further stated: The purpose throughout the appraisal of the distribution system was to allow a valuation where the

company incurred pavement expenditures and to exclude any allowance for pavement laid and paid for by the city. The pavement over the company's present distribution system of which the street mains alone are nearly 2,600 miles in length is reasonably worth $6,000,000, but this is the investment of the people of Chicago and not the investment of the Gas Company. Even if the reproduction theory is to be carried to the utmost extent, it does not follow that the same distribution arrangement would be followed and that the same number of pipes would be placed in the streets as they exist at present. It is probable that much of the distribution system would be placed in alleys and part ways where the construction expense would be very much reduced. If under the decisions of the courts the above amount, together with the additional reproduction cost of cutting through all the pavement, must be allowed in the valuation, the investment value and the interest requirement will be very much increased. In the leading utility rate cases the court has failed to hold specifically that the value of the pavement over the mains not paid for by the company must be included in the plant values. In all such cases the paving item was very large, and if it were intended to include it in the valuation, it is reason-
1824 able to assume that the courts would have so stated. On the other hand to exclude such pavement valuation has received the endorsement of the federal court and public service commisisons. Every legitimate expenditure in adapting the utility to the demands of progress and community growth is a proper charge to construction, and as such the investment therefor is entitled to participate in the distribution of earnings from operation. If expenditures for pavement are incurred by the utility in response to assessments levied by the city, or are incurred in cutting through the pavement for construction purposes, these are proper capital charges. It does not seem reasonable, however, that a utility should be permitted to capitalize expenses for municipal betterments in which it has not participated, and when the benefits which accrue to it are remote and incidental. To do so would be to compel the customers for utility service to pay increased rates because of their civic progressiveness. For the above reason the city's expenditure for paving the streets over the company's distribution system is not regarded as a gas company investment in rate adjustment proceedings; regardless of the value which may exist in a commercial sense because of such improvements. To include the cost of cutting through such an amount of paving and its subsequent replacement would seem to be carrying the reproduction cost theory further than justice warrants. Did you state that in your report to the sub-committee of the city of Chicago?

A. That in substance. I believe you have read my report correctly.

The MASTER: We are losing sight of one proposition and that is this is not a rate making court.

Mr. BRENNAN: This is a report to the council of the city of

Chicago. We have this thought in mind: There are certain
1825 witnesses introduced by the complainant in this case claiming this valuation must be predicated upon certain items. Here is another witness who has a different notion about it. When we come to discuss it we will find there is more or less inconsistency.

The MASTER: That matter on the question of rate making would not have very much weight as to the question involved here.

Mr. BRENNAN: Only in so far as the questions in dispute may enhance or decrease the value of the property of the complainany company.

The MASTER: There must be kept in mind that the Supreme Court of the United States has held that this court is not sitting as a rate making court. The only question this court has to settle is whether or not it is confiscatory.

Q. You do not find anywhere any record or any credit to the capital account for these pavements, do you?

A. You mean charge to the capital account?

Q. Yes.

A. No, sir.

Q. You do not find anything?

A. Not for expenditures not actually incurred in paving by the company.

Q. What do you find the cost value of the property now including the working capital?

A. $2,056,106.65.

Q. Where is that shown?

The MASTER: That is adding the working capital?

A. That is adding the working capital as shown in the last column of schedule 1 Exhibit B of my report.

Q. That is $128,000 for working capital?

A. Yes, sir.

1826 Mr. BRENNAN: I believe that is all, subject to recall.

Redirect examination by Mr. GUERNSEY:

Q. Before I forget it, Mr. Hagenah, you stated that in making these adjustments which you refer to, you had eliminated certain items from the cost of the property shown by the company's books?

A. Yes, sir.

Q. Now in making these adjustments I wish you would state whether you added any items?

A. No, sir; I do not recall any.

Q. So that the only change in this property account that you have made was to subtract from it?

A. Yes, sir.

The MASTER: What you call the replacement account there?

A. That is in the operating expenses; not included in the construction.

The MASTER: What you deducted for replacement is not in the total?

A. No, sir, not in the total.

The MASTER: That would be about $10,000?

A. That does not belong in the total.

Q. Now, Mr. Hagenah, you were asked very early in the cross examination whether your employment by the city of Chicago had not terminated and you said it had; I wish you would state the circumstances which led to the termination.

A. In short, my report was displeasing to the administration which succeeded to the administration under which I was employed.

The city desired me to turn over all my working sheets and
1827 data and records and all material which I had compiled during the course of my work on that case, for the purpose of criticism and review by other parties. This material had been given to me under a contract which was as binding as I felt any contract could be, and I could not violate that contract, and rather than to break the contract on my part I gave the city of Chicago my resignation.

Q. It was a question then of keeping your word or keeping your job?

A. And between the two I kept my word.

Q. Now, Mr. Hagenah who was employed to succeed you and to criticise your report, by the city of Chicago?

A. Mr. Bemis.

Q. Is he the gentleman sitting back of Mr. Brennan and making suggestions while he is cross examining you about this report?

A. Yes.

Q. Now, referring to this conversation with Mr. MacVicar, was the audit which you have made of the books of the Des Moines Gas Company two years prior to that time or about two months prior to that time?

A. About two months prior to that time. It was the first work I ever did for the Des Moines Gas Company.

Q. I wish you would explain some of the reasons why in connection with the sinking fund created to take care of depreciation, rates of interest are taken that are lower than the rates of interest that are taken at the same time as a basis of a return?

A. The depreciation rate is computed on a sinking fund basis, having a relatively low rate of interest. This fund must be invested by the company and only a comparatively small part of it is ever available for investment and that cannot be invested for a relatively long time; so that the disposition of these funds must be
1828 governed by the rules and conditions which affect the investment market rather than conditions surrounding an industrial or speculative basis. The rates governing in the investment market are quite well defined and vary in different parts of the United States from four to five and a fraction per cent. The rate ordinarily used in computing a return for the sinking fund plan in depreciation allowance is four per cent. The rate to which a company is entitled on its investment is necessarily a much higher rate, because it is the earnings from a business in actual operation and is therefore entitled to the same rate of return which a business operat-

ing under similar conditions of risk would be entitled to earn. The gas business is subject to risks and the investments there are for an uncertain time. There is no assurance that the money will ever be returned. There is no collateral to secure your investment and to a large degree it is beyond your own control. These conditions in the money market demand a relatively higher rate of return.

Q. Please state whether so far as you know it is the universal practice to take for your sinking fund rate of interest a rate that is lower than the rates talked about as rates of return?

A. As far as I know that is the practice.

Q. Now you were asked whether this investment valuation which you have made and which is set out in the final form in Exhibit 26, if my recollection is correct, and in a tentative form in Exhibit 25 and 23, took any account of appreciation on account of pavement over the mains; I wish you would state whether this valuation takes into account appreciation in the value of real estate that may have been purchased thirty or forty years ago?

A. It does not; it shows only the cost of real estate pur-
1829 chased at that time which in many instances is many years ago.

Q. In other words, what I want to get at is the reason why you did not refer to appreciation on account of these various matters is because it is investment that is the underlying idea in this computation which you have made?

A. It is; cost as shown by the books is the underlying idea rather than the value.

Q. Now, you have a good many times during your examination and cross examination referred to actual cost and actual investment and cost as shown by the books; I wish you would state generally whether throughout your examination or not, you have used these expressions as meaning cost as shown by the books without including what we have called the overhead items?

A. I mean by these several terms costs as shown on the books of the company.

The MASTER: That would not include interest actually paid?

A. No, sir; unless they charge it on their books to the construction account to which I find no charges.

Q. Taking up the other items, how about engineering, taxes, contingencies and things like that?

A. There are no charges for those on the books that I found.

Q. So that they are not included in this $1,928,016?

A. No, sir; to my best recollection all the taxes charged to operating expenses and the salaries of officers, even while they devoted their time to construction work were all charged to operating expenses and no part went into the construction account.

The MASTER: Then they would appear in the operating expenses?

A. They would, in the operating expenses.

Q. Now you referred to a payment of ten thousand dollars made during the year 1910 on account of services furnished to the
1830 Des Moines Gas Company by persons who were also in the employ of the United Gas Improvement Company and you mentioned as two matters that were included in services of this

kind, engineering and auditing and were then interrupted and did not finish your answer. Can you state any other matters that are included?

A. Another service probably more valuable than either of those two is the financial assistance this company receives from the United Gas Improvement Company.

The MASTER: He has already said that.

Mr. GUERNSEY: Yes, but the question stands on cross examination as if it was omitted.

A. The United Gas Improvement Company affords to this company its own credit and assistance in the way of furnishing bonds and ready cash.

Q. How about the purchase of materials and supplies?

A. The benefit is very material through the purchase of supplies in large quantities through the Philadelphia office and charging this company with the cost of its proportion of the larger purchase.

Q. In what way was this payment of $10,000 made?

A. That was paid in the form of salaries to four or five individuals who are themselves connected with the United Gas Improvement Company for services which they rendered to this company.

Objected to on part of defendants as not the best evidence and for that reason they move to strike the answer.

Mr. GUERNSEY: Do you really mean that?

Mr. BRENNAN: I really mean that the check which he says was paid to these people is not the best evidence.

Mr. GUERNSEY: He did not say check. At the very outset
1831 we were not to bring the books in here; I understood counsel to say they did not want us to do that.

Mr. BRENNAN: I am objecting to that part of it as not the best evidence.

Mr. GUERNSEY: Do you want us to bring the books in; do you waive our having the books to show these items here, while we are talking about these items?

Mr. BRENNAN: We object to this witness testifying as to the manner in which this $10,000 is paid, if he has testified from the books.

The MASTER: They have already waived that. This other matter is a different problem altogether. It is understood he is testifying from the books.

Q. You have no personal knowledge of these matters, have you?

A. Not at all.

Q. Now, then, Mr. Hagenah, to go back, you stated as I understand it, the books show these payments aggregating $10,000 in the year 1910 were made to certain persons in the form of salaries who were at that time officers or employés of the United Gas Improvement Company. Will you please state whether as shown *shown* by the books it appeared that these same persons were at the same time officers or employés of the Des Moines Gas Company?

Defendants interpose the same objection.

Mr. BYERS: It seems to me that is a waste of time; that item will

be fully explained by some person on behalf of the company before we get through here.

Mr. GUERNSEY: I do not see why counsel object to my asking the witness what he knows about it.

The MASTER: Answer the question.

A. I think they are.

1832 Q. Referring to complainant's Exhibit 27, I will ask you to state whether at the request of the complainant you have taken the expenditures of this company as shown by the books and the present value of the property as shown by the testimony of the witnesses Baehr, Lea and Randolph, and the average of the present value as shown by these witnesses and attempted to reconcile the differences?

A. I did.

Q. And is this Exhibit 27 the sheet which you have prepared to show this reconciliation?

A. This typewritten copy of the original which I prepared I believe is correct as to typewriting.

Q. Now then will you explain to the Master just how you made this up and what these differences are and what have caused these differences?

A. The first column in this exhibit agrees with the footings in schedule 1 Exhibit B with the single exception that for the purpose of this table I have combined the total in the column headed "extensions and improvements" and the total column headed "street lamp extensions"—I beg your pardon; the combination has been of two columns entitled "services and street lamp extensions." The amount for extensions and improvements is as per my report. The total agrees with my report to which I add the $128,000, making a total of $2,056,016.65 as the cost of the property plus working capital at the close of 1910 as shown by the books.

Q. Pardon my interruption. In this first column following $2,056,016.65 you have three items, paving, overhead and indirect charges and going value which appear blank in that first column?

1833 A. They are blank because there is nothing on the books which I have been able to find showing paving not paid for by the company, over head and indirect charges and going value as these terms are used in the engineers' reports for which I am trying to compare book figures. In the second column I take the sum total shown by the company's books and make certain distribution of these items to show more nearly the cost of the property opposite to the titles shown at the left hand of the page. This is done because the land in my report is included in the general title extensions and improvements and for the further reason that the item which we discussed yesterday amount to $285,000 covered every class of property. I distributed that total over the different columns in so far as I could do it with the degree of accuracy which I could obtain from requests of those who were supposed to know and in talking with the engineers who had valued the property included in that item. That gives me the same total to which I again add the

working capital and receive the same total as in the first column. The next three columns show the valuation of the property in its present condition as of January 1st, 1910, made by engineers Baehr, Lea and Randolph. To their totals of the physical property I have added their estimated working capital and show on the following line their total of the physical plant plus the working capital. They show in their appraisals the item of pavement over mains and certain indirect and overhead charges and estimated going value. The item overhead and indirect charges I could not take out from the major classifications of property because they were so involved and connected with the cost of the property that it would have
1834 necessitated going through every item as detailed in their report to make that separation. The allowance for indirect and overhead expenses with the exception of a small amount in Mr. Lea's report is therefore included in the major classifications above. Their going value is shown here as shown in their report and on the last line their totals. I have then averaged the three appraisals and the corresponding valuations appear in the next column of figures. This column I have compared with the second column in Exhibit 1 which shows the book cost as redistributed to absorb the $285,000 single charge of the company's books and find there are differences which appear in the last column under the heading "excess of present value over book cost." The first item shows that the average of present value from the reports of the three engineers exceeds the book cost by $188,145.74.

Q. What item is that?

A. That shows the difference in the appraisal as opposed to the book cost of the real estate.

Q. Under the heading of remarks opposite that item, what have you in the way of explanation?

A. Under that heading I tried to explain this difference. In this case it is my opinion that the difference represents the increment or appreciation in the value of the real estate as opposed to the book cost and the indirect charges which the engineers added to the value of the real estate.

Q. Now take the next item?

A. The second item shows—that includes buildings, equipment, machinery, holders, oil tanks etc., under the heading of extensions and improvements. I see in referring to this column the stenographer has omitted the minus sign in two or three places
1835 where the book value exceeds the present value placed on the property by the engineers.

Q. In those instances does the average present value exceed or is it less than the book value, as you call it?

A. With respect to extensions and improvements the book cost is greater than the present value of the property as appraised by the engineers and shown in the average of their three appraisals, it is larger than this average by $68,854.20. There should precede this figure a minus sign omitted by the stenographer.

Q. Will you tell us, so that Mr. Brennan and myself can straighten these out what minus signs you put in there?

A. I put a minus sign before the $68,854.20 and also before the item, $6,776.93; and also before the item $25,226.60 all in the same column.

Q. Now will you proceed—you had just started on this item of $68,854.20 which is the amount which the book costs of the extensions and improvement exceeds the average present value or cost of reproducing the physical property given by the engineers.

A. The engineers' reports show the present value and the book figures show the cost new to the company. The difference therefore represents the allowance for depreciation as compared to the book cost.

Q. Let me ask you what do you include by extensions and improvements here?

A. The buildings, machinery and equipment, holders, oil tanks, and in general the apparatus at the works.

Q. Recurring to this item $68,854.20 which takes up what depreciation was allowed if there were increased in the prices of
1836 commodity and labor and things that go into the costs of these various matters that are included in extensions and improvements, how is that taken care of?

A. That will be shown through the appraised value by the engineers. They are appraising the property on a reproduction new basis and a reproduction present value basis, and if there has been any appreciation in commodity prices for wages, it would appear in their valuation and not in the book figure.

Q. And in the same way if there were depreciation, that would appear in these figures and would affect the amount of this $68,854.20, which would be attributable to the depreciation.

A. It would take into consideration depreciation and appreciation neither of which the books cover.

Q. That is what I wanted to bring out—this may not check with their depreciation account because they may have taken either higher or lower construction costs of these items.

A. There must also be considered in connection with this the overhead and indirect expenses which are included in these figures by the engineers.

Q. Now, take the next item, street mains, what is the situation?

A. Comparing the book figures with the average of the three engineers' present value I find their figures exceed the book figures by $135,207.34. This item on the books covers the cost of laying the mains and the material and the cost of whatever pavement the company cut through to replace. The difference must be accounted for by the increase in commodity price and the increase in labor since the time the mains were laid and the charges therefor appear on the company's books and also shows an increase because of the engineers having included indirect and overhead charges in their appraisals.

1837 Q. Now the next item, meters, what is the situation as to that?

A. A comparison of the average of the three engineers present value with the book figure for matters shows that the present value

of the engineers is less than the book figure by $6,776.93. This shows the depreciation on the meters which the engineers have allowed, but they have added to the cost their usual allowance for overhead and indirect expenses.

Q. So that this would not equal the total depreciation allowed?

A. It does not.

Q. In the matter of services, what is the situation?

A. A similar comparison shows that the present value placed upon the services by the engineers, using their average, is less than the book cost of these services by $25,226.60, which is again explained by the element of depreciation which the engineers allowed and the charge for overhead and indirect expenses which they include in their appraisals.

Q. Now, going to the next line headed total, what do the figures $222,495.35 indicate?

A. That is the total excess of the average present value of the property taken from the three engineers' reports and compared with the total book cost shown in my report and again on this exhibit amounting to $1,928,016.65.

Q. What is the next item?

A. To the engineers appraised value I have added the estimated working capital and that average is shown in the sixth column. The difference between that average, working capital, and the amount as I computed it from the balance sheet is $22,282. and that represents the difference of opinion which existed between the engineers and myself as to working capital, and it also shows the element
1838 of danger which exists in taking working capital solely from the balance sheet as of a specific date, for the inventory account may be abnormally low at that time and the items current assets and liabilities may be such as to show an unfair condition to be assumed as an average for the year. My figure is $22,282. less than the average of the engineers.

Q. To put it in another way, your figure eliminates judgment and theirs does not?

A. Exactly. I base mine entirely on the balance sheet as of a given date in this case at the end of the business of 1910.

Q. Of course this business is like every other business, the items you took into account vary from time to time, the bills receivable, cash on hand and things like that?

A. They do fluctuate. I have added these two items which show the total excess of the engineers average from the book figures $344,777.35 their average as compared with the total I gave a few moments ago the cost of the physical plant plus working capital, $2,203,302.

Q. Let me ask you, this $244,777.35, what is the fact whether that is the difference between the total column of the average present value and the total of your first two columns which is the total in the sum as expenditures as shown by the books $2,056,016.65.

A. It is. The next three items show the average allowance by *by* the three engineers for paving and overhead and indirect charges and going value. Not any of these items appear on the company's

books. Consequently there is no figure with which to compare the item $22,674. and is not to be given the greatest consideration because it is an average of a single item from one report and rep-
1839 resents by no means all the expenses of that report.

Q. You mean this item of $68,023.

A. Yes, sir.

Q. That was overhead and indirect charges as you could segregate from the other items in Mr. Lea's report?

A. Yes, sir.

Q. You divided that by three and obtained $22,674.

A. Yes, sir.

Q. What is the $2,203,302.

A. That is the average of the engineer's present value of the physical property, plus working capital and allowance for paving and the average of the overhead and indirect charge and the going value.

Q. How did you get these columns to balance, how do we find out whether they balance or not?

A. The figures are taken from the engineers reports.

Q. I don't think you understood me. Do you balance by adding the sum of the last column excess present value over the book costs and the book cost shown in the first two columns to see whether that sum equals the total of the column of average present value?

A. To prove my total I deduct the amount shown in the total for the second column which is the figure on the company's books, from the average of the three engineers' figures $3,203,302, giving me an excess $1,146,285.35 shown in the last column which is also the total of the plus and minus signs in that last column.

Mr. GUERNSEY: The complainant now offers in evidence Exhibit 23, identified in connection with the examination of this
1840 witness.

Mr. BYERS: The defendants object to it as incompetent, immaterial and not sufficiently identified as to the items it purports to contain.

Complainant offers in evidence Exhibit 24, identified in connection with the examination of this witness.

Objected to on part of defendants for the same reasons last above stated.

Complainant offers in evidence Exhibit 25, identified in connection with the examination of this witness, this exhibit being the third tentative calculation, if I correctly recall the number, of the investment value by this witness.

The defendants interpose the same objection and add to the objections to Exhibit 23 and 24 the further objection that the Exhibits are merely conclusions of the witness, taken from the records and figures which have not been included in evidence, nor sufficiently identified.

Mr. GUERNSEY: That gets us right back to the original proposition whether you want us to bring the books over.

Mr. BYERS: We don't want you to bring the books over. This objection does not raise the question of the books being here at all. It is an entirely different thing.

Mr. GUERNSEY: Do you make a question that the books from which these statements were taken have not been identified as the books of the Gas Company?

Mr. BYERS: No, sir.

1841 Complainant offers in evidence Exhibit 26, it being the final calculation by this witness of the investment value of the plant of the complainant.

The defendant interposes the same objection last above made.

The complainant also offers in evidence Exhibit 27, which is the reconciliation of the expenditures as shown by the books, with the testimony as to the average present value which has been introduced by the complainant.

The defendant interposes the same objection as last above made.

The MASTER: I am afraid that is a little misleading.

Mr. GUERNSEY: I do not object to changing my description of it. That is what we called it in our discussion. That is simply the name of this paper.

At this time an adjournment was taken until 1:30 p. m.

1842 1:30 p. m. TUESDAY, *August* 8, 1911.

W. J. HAGENAH being continued on redirect examination by N. T. Guernsey, Esq., testified as follows:

Q. Mr. Hangenah, before I forget it, on your direct examination what you said with -eference to the matter of discount on securities may not be entirely clear, there may be some misapprehension about it. I wish you would state whether the books of the company take into account any items as part of the cost arising out of discount on securities.

A. My answer to that question was not clear and may lead to a wrong impression. There are charges to construction on account of discount on bonds.

Q. And where tho-e charges appeared do you eliminate them or recognize them as part of the cost?

A. I recognize them as part of the construction cost.

COURT: Do you remember what the amount of it was?

A. Not exactly, but in round numbers I think it was about $75,000. I am not sure as to that.

COURT: That was reckoned as part of the cost of construction?

A. Cost of construction, cost of getting money for the construction.

Q. I see a memorandum of another matter here that I think I might as well refer to at this time. You refer to Exhibit "B" Schedule 1, and name various items that were included in the first column headed extension improvements.

A. Yes, sir.

Q. Where did office furniture and fixtures appear?

1843 A. They are included in that column.

Q. Referring to schedule 5 where you make some adjurtments on account of construction items and depreciation as I understood you, you in answering one question referring to this amount

$7,351.92 gave that amount and then set against it there should have been a depreciation allowance. Now what depreciation allowance did you refer to as something against this $7,351.92 or the depreciation allowance which you estimated here as a necessary operating expense?

A. That bring- up the question which the Master asked this morning and I don't think it was properly explained. He asked the question in connection with another page of my report. What I meant was that taking the year 1910 I eliminated from the operating expenses for the purposes of schedule 5, the sum of $7,351.92, this amount contained $6,087.17 which represented replacement expenditures and $1,264.75 which represented capital charges. The replacement charges are excluded from the operating expenses because I added to the operating expenses an amount estimated to cover the requirements for depreciation. Since this item which represents replacement charges that year is really a part of and is included in the term depreciation if I had not excluded it, it would have amounted to a much larger charge for depreciation equal to the amount shown in Schedule 5, plus the $6,087. What I did was to make an adjustment there by reducing operating expenses by the amount improperly charged and adding to it the amount which should be charged to cover the estimated depreciation, both that covered by actual replacements, and the deferred maintenance for that year. As against the other number of $1,264.75, that might properly be charged to the construction account for that year
1844 because I have thrown it out of the operating expense, to be entirely accurate in that I should have charged to the total $1,928,000 this sum of $1,264.75 which I called improper operating expenses. For the three years over which I made that analysis the difference to the construction account because of this adjustment would be slightly in excess of $2,000.

COURT: Aside from that in your total operating expenses are included all charges and taxes and special taxes?

A. Yes, sir.

COURT: And interest?

A. Yes, sir.

COURT: And material?

A. Yes, sir.

COURT: But fixed charges are not included?

A. They are not included as operating expenses, but they are deducted before arriving at the profit and loss for the year.

Q. In your report Exhibit 23, in Schedule 2, and the exhibits which are attached to it, I think you have the statements of the operating expenses without taxes or depreciation for the year ending September 30, 1898, the year ending September 30, 1909 and the year ending September 30, 1910. Now I wish you would look at Exhibit No. 28 and state whether or not that shows a summary of the detail matters that I have referred to that are contained in your report and also the average for these three annual periods?

A. Yes, it does show the totals from my report for the year 1908 1909, and 1910.

Q. I think I made a mistake in describing this, that is I excluded taxes, it includes taxes and excludes depreciation I think?

1845 A. That is it.

Q. Now this gives not only the total operating and the total revenue and the difference for each of the three years, but also it averages the three years?

A. Yes, sir.

Q. And this is in effect a summary of these other more detailed statements?

A. Yes, sir.

Mr. GUERNSEY: We offer this Exhibit No. 28 in evidence in connection with the examination of this witness.

Defendants object to the offer for all the reasons urged to the offer of the other exhibits.

Q. Calling your attention to Exhibit No. 25, that covers I believe a five year period showing operating expenses and the revenue commencing with the organization of the present company and including the year 1910?

A. It does.

Q. Referring to the paper that is marked Exhibit No. 29 I wish you would state what that is?

A. This table shows in a condensed form the gross earnings, operating expenses, taxes, depreciation, the total operating expenses which is the sum of the three preceding items, the net earnings the miscellaneous sales, and lastly the net return as computed in this manner available and applicable for interest and profits for the period since the organization of the Des Moines Gas Company to the close of the calendar year 1910 and shows also the average of these several periods for each of the items in the table.

Q. I think you testified during your direct examination that you had verified this exhibit 24. Have you checked Exhibit 29

1846 with Exhibit 24 so as to be able to tell us whether it is a correct summary of what appears in detail in Exhibit 24?

A. It is, and is correct except for such matters as typographical errors which might have crept into it in making a copy of it. The figures which it contains are copies for the totals in the different states as contained in Exhibit 24, which I did check against the books.

Q. In 1909, the year ending December 31, 1909, there is an item in red $107,783.26 opposite net earnings from sale of gas. How does that happen to be in red?

A. That shows a deficit on the books for the year in question because of the fact that the company made a charge for depreciation that year to the amount of $264,108.78. This is the only charge for depreciation during all the years covered by this table and since this depreciation over the entire period is charged against the single year it wipes out all the net earnings and leaves a deficit on the books

for that period of $107,783.28 as opposed to the net earnings for these years.

Q. Now what is this item miscellaneous sales, what does it cover?

A. That covers revenue which the company received from transactions other than the sale of gas and residuals.

Q. And what kind of stuff does the company sell aside from gas and residuals?

A. Such as stoves and lighting fixtures.

Q. What we call gas appliances?

A. Appliances, yes, and performed house fitting services and sell to its employés some very small amounts of coal and coke I believe which those employés may from time to time want for their own domestic use. It is a facility and convenience afforded its own employés.

1847 Q. And opposite this item in each column for each period there appears the result of those transactions for that period?

A. From these commercial or miscellaneous sales.

Q. Now what is the last column here, this last column appearsong on Exhibit 24?

A. The last column is computed for the years covered in Exhibit 24, for the major items in this condensed income account.

Q. And what is the average result there as shown in this period of these miscellaneous sales profit or loss and how much per annum?

A. It is a profit, a very insignificant amount compared with the other figures. The average for this period is only $203.86 profit.

Mr. GUERNSEY: We offer Exhibit 29.

Objected to as incompetent, irrelevant and immaterial.

Q. Referring to the paper, Exhibit 30. I will ask you to state whether that is a summary of the same period, but excluding Valley Junction?

A. It is.

Q. And what does this Exhibit No. 30 contain?

A. It contains a condensed income account showing the earnings for the city of Des Moines and the earnings in Valley Junction, the operating expenses in Des Moines, or rather for the Des Moines proportion of these gas transactions, and the valley Junction proportion, the net earningsm miscellaneous sales and net return applicable to interest and profits for the period since the organization of the Des Moines Gas Company, including and up to the end of the year 1910, and the average for each year covered in that period.

1848 Q. And what appears as the average net return from the plant in Des Moines applicable to interest and profits after the deduction of the Valley Junction business?

A. The net return applicable to interest and profits after deducting the Valley Junction proportion is $112,972.03. That is the average for that period.

Q. And — what basis is the deduction for Valley Junction made, in the first place I suppose there is a reduction from the receipts.

A. Yes, sir.

Q. Explain to the Master how you got at that?

A. The gas sold in Valley Junction sold at a different rate than in Des Moines, the rate is $1.50 per thousand. I deducted from the total earnings of the company the amount representing sales of gas in Valley Junction and multiplied by $1.50 per thousand to show the Valley Junction proportion of the gross earnings. I deducted from the operating expenses the cost of manufacturing, that is the amount of gas sold in Valley Junction at the cost of manufacture as shown in the city of Des Moines.

Mr. GUERNSEY: We offer in evidence this Exhibit just marked Exhibit No. 30.

To which offer the defendants interpose the same objection that was heretofore made.

Judge CARR: We have a couple of witnesses here on a different subject whose testimony I think will not be very long, and as it is difficult *from* them to be away from their business I would ask that this witness be allowed to step aside and we will put on that testimony now.

Mr. BRENNAN: We have no objections.

Witness excused.

[End of Volume II,]